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ABSTRACT

A study examined the sex-fair knowledge, attitudes, and behaviors of vocational educators who attended a credit inservice course on sex equity that was given in various locations throughout New York State. In order to evaluate the effectiveness of the course, researchers used three survey instruments to collect initial data on the knowledge, attitudes, and behavior of the course participants at the beginning of the course and to determine whether the course had any impact upon these three areas 6 months after the educators completed the work. To identify any such changes, researchers compared data from pre-course knowledge and attitude measures administered to 673 course participants to data from a post-course attitude measures completed by 401 course participants and from data on student checklists that were administered to high school classes taught by those attending the inservice course. Analysis of these data revealed a high correlation between the sex of vocational teachers within subject matter areas and their attitudes, knowledge, and behaviors with respect to sex fairness. However, data did point to significant positive changes in the knowledge, attitudes, and behavior of course completers of both sexes. Recommendations included a call for presenting sex equity information in terms of human rather than single-sex issues. (MN)

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SEX FAIR KNOWLEDGE, ATTITUDES & BEHAVIORS OF VOCATIONAL EDUCATORS: A RESEARCH REPORT

VEA-53-81-9121
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I

REVIEW OF LITERATURE

Title II of the 1976 Vocational Education Amendments required each state carry out activities for the elimination of sex bias and sex stereotyping in vocational education programs. An assumption being made is the lack of knowledge about expanding roles and sex stereotyped attitudes and behaviors of vocational educators serve as barriers for identifying and eliminating subtle as well as obvious forms of sex discrimination in education. Research supports the construct of sex stereotyped attitudes and behaviors of educators perpetuating the stereotyped attitudes and expectations of students. Dittman (1980) stated "Knowledge of educators' sex role perceptions is the first step to predicting and controlling inequities in vocational education." Self-knowledge of behaviors is also critical to changing inequitable classroom treatment to equitable classroom treatment that will minimize the perpetuation of students stereotyped attitudes, expectations and behaviors and maximize their enrolling and succeeding in non-traditional courses.

Measurement of the Three Variables: Knowledge, Attitudes and Behaviors

Information about the initial knowledge of program participants is typically deemed an important factor in planning and implementing effective programs. Yet the amount of knowledge educators have, in and of itself, provides a weak theoretical construct as an indicator for the amount of sex stereotyping and

bias that may be occurring in an educational setting.

Attitude and attitude change are frequently used as a means of determining effectiveness of programs even though there is limited theoretical support that changes in attitudes actually reflect changes in behaviors (Fishbein, 1963; 1972; Vroom, 1960; Wicker and Pomazal, 1971). Though desired as the ultimate outcome of programs, measurement of actual sex stereotypical behaviors of educators in an educational setting can be time consuming, costly and difficult to obtain.

Factors other than attitude are known to influence behavior. People can perform specific behaviors (Ajzen, 1970; Hornick, 1972). Both males and females have shown to change their level of performance to conform with their perceived expectations of their superior (Jellison, Jackson-White, and Bruder, 1975). Members of both sexes have been found to perform equally when told that the evaluator approved of high intelligence; when they believed that the evaluator disapproved of intelligence, their performance declined (Lockheed, 1976). Changes in behaviors due to perceptions of others rather than behavioral change due to attitude change can be likened to the difference between compliance and commitment to equity.

In that all three variables of sex fair knowledge, attitudes and behaviors of teachers are reported on in this research document, research on all three variables are reviewed. The relationship between these three independent variables and between each

of them and the dependent variables of sex and subject matter area of educators and sex of students are also reported on as part of this research. The literature was also examined for previous findings relative to these relationships.

Knowledge of Vocational Educators

The review of literature did not find the variable of educators' knowledge about changing family and work roles of men and women a component of very many research studies. When examined, it was usually in combination with educators' attitudes.

A 1978 review of studies by the author (Farris, 1978) found significant differences reported between male and female vocational educators and between some groups by subject matter areas on various aspects of knowledge about stereotyping and changing work and family roles. Atkinson (1987) reported a lack of knowledge of Michigan vocational educators about the relationship between sex role socialization and occupational choice and preparation. Cunningham (1981) reported similar finding about Missouri vocational educators. This study found significant differences by sex and subject matter areas. Hantjis (1977) also reported significant differences in knowledge by sex.

A 1976 study by Lewis and Kaltreider indicated that, among school personnel, counselors were the group most knowledgeable about limiting effects of sexism on youth. Bingham and House (1973) found male counselors less accurately informed than female counselors as to the occupational alternatives available to and needed by women, the general ability of women, and the amount of time women spend in the labor force. Results of various studies on the knowledge of counselors about changing roles and sex stereotyping report some differences in findings when counselors were compared to other groups of educators. Generally, counselors were found to be as or more knowledgeable than many groups of subject matter teachers.

Attitudes of Vocational Educators

Studies concerning educators' attitudes towards "women's liberation" have been the most common method of assessing sex stereotyped attitudes. The attitudes measured tended to be very general or specifically addressed attitudes about expanded work roles of women. The measurement of attitudes about stereotyping in general rather than expanded work and family roles for both males and females was the other focus of some of the research. Studies of attitudes about "women's liberation" and stereotyping invariably found females holding more liberal attitudes than males (Thorne, 1978).

Lewis and Kaltreider (1976), Dittman (1976), Eversole (1977), Hantjis (1977), Kellet and Horadine (1981) and Cunningham (1981)

studied sex stereotyped attitudes of vocational educators. Lewis and Kaltreider found that teachers viewed male students as more mechanically inclined than females and females as neater, less likely to curse, and more likely to cause "sexual attraction problems" in a class. Dittman found North Dakota vocational teachers, counselors and administrators highly consistent in having sex stereotyped perceptions of males and females. The perceptions did not differ significantly by sex, educator's group or subject matter area. Eversole found the degree or amount of sex stereotyped attitudes differed by program area and sex of educator, with females and home economics, health occupation and business teachers being more liberal than males and agriculture, trade and occupational teachers. Kellet and Haradine found significant differences between vocational student teachers and teacher educators and by sex with female student teachers having the more liberal sex sterotyped attitudes. Home economics student teachers held significantly less stereotyped perceptions than business, agriculture and industrial education teachers. Cunningham reported similar findings concerning the sex stereotyped attitudes by subject matter area and sex of Missouri vocational educators. Research by Hantjis confirmed the significant difference between attitudes of males and female vocational educators.

Counselors have been found to exhibit sex stereotyped attitudes about males and females. Griffin (1978) found counselors scored much lower than home economics teachers on awareness of sexism. Negative attitudes were found towards females who excelled in traditionally masculine occupational areas by Abramorvity (1975). Buk (1974)

reported that counselors of both sexes reported traditional careers for women more appropriate than "male" careers.

Lewis and Kaltrieder (1976) reported evidence of counselors sex biased attitudes in that counselors varied in degrees of support for traditional or non-traditional career choices of students. Bingham and House (1973) found that counselors reported more positive than negative attitudes towards women and work along with a great deal of variation in their attitudes. They also found female counselors tended to be more supportive and positive towards female students than male counselors. Abramowitz, Weitz, Schwartz, Amira, Goomes, and Abramowitz (1975) reported that traditional counselors judged the psychoeducational histories of female clients as indicating poorer psychological adjustment than those of male clients.

Though some studies have found counselors to be more knowledgeable about the effects of sex role stereotyping and changing work force and family roles, they have generally been found to hold less than liberal attitudes.

Various research studies have shown that teachers', counselors', and administrators' attitudes, values and expectations have a significant influence on students (Leacock, 1969; Lee and Kadar, 1974; Rosenthal and Jacobson, 1968; Sadker and Sadker, 1974; Steele, 1974). Levy (1973) believes that the teacher affects change in the classroom; "When a teacher changes, everything in his or her classroom changes as well. When a teacher becomes aware of sexism, this awareness cannot help but reach at least some of the children."

Behavior of Vocational Educator

Teachers' classroom behaviors and interactions have been found to differ significantly in the treatment of male and female students (Levitin and Chananie, 1972; Spaulding, 1963; Lewis and Kalfreider, 1976, Brophy and Good, 1974). Numerous studies and reviews of research have concluded that teachers interact more with boys than girls, direct more praise, questions, and criticism at boys and use ideas of boys more frequently. Often sex related differences in treatment include different and more use of classroom materials and space by boys, and lower grades assigned to boys (Anderson, 1971; Lee and Gropper, 1974; Thorne, 1978). In an extensive review of the literature, Safilios-Rothchild (1979) reported on numerous studies which indicated that teachers exhibit and use mechanisms that are both subtly and blatantly sex differentiated. This review also concluded that little research has been carried out on the extent to which teachers' sex role stereotypes affect the scholastic performance of girls and boys.

Hantjis (1977) found that female vocational educators reported significantly more liberal sex-fair behavioral intentions than males. Differences in behavioral intent were found for different levels of professional working experience, area of residence in the country, age and subject area taught but not for educational levels. A relationship

was found between the degree of liberalism of attitudes and degree of reported behavioral intent, with individuals having liberal attitudes reporting more liberal behavioral intent than individuals with conservative attitudes.

Klein and Richardson (1980) concluded that most teachers do not realize or report that they tend to treat male and female students differently even though most of the research documents teachers interact differently with girls than with boys. Their findings differ from those of an earlier study by Sears and Feldman (1966) who found teachers reported that they treated male and female students differently but not treating either sex in a preferential way.

Wirtenberg's research (1979) found that teachers tended to interact more with boys than girls in co-ed vocational classes, and also exhibit sex stereotyped attitudes with regard to the relative importance of industrial arts and home economics to each sex. The teachers also manifested sex stereotyped behavior in the content of their remarks, language usage, within classroom separation of girls and boys, and choice of curriculum and projects provided to students.

Brophy and Good (1974) found some studies reporting that teachers tended to interact more frequently with boys as a reaction to more intense and frequent initiation by boys, but other studies showed that teachers tended to initiate more interactions with boys, even after controlling for boy-initiated interactions.

Dweck (1975) studied teachers' feedback to boys and girls in the classroom to see if there were differences in the nature and frequency of interactions which boys and girls receive. Results indicated that most of the negative evaluation of girls'

performance was related to intellectual inadequacies or incorrect work. Boys, on the other hand, received 45 percent of their criticism due to factors other than intellect. Thus, the teachers rendered more poor evaluations for girls than for boys, based on lack of ability. This behavior promotes more of a positive self-concept for males than for females in relation to their abilities. In other words, inequitable interactions appear to limit female students' self-concepts of their intellectual ability (Klein, 1981).

Student behavior is developed in a variety of different ways, such as modeling, modification and shaping patterns. The sex distribution of female and male teachers in specific educational areas creates a model for students to emulate (Wirtenberg, 1979). A 1977 survey by Kane, Fernandez and Godoff, indicated that teachers continue to conform to traditional sex stereotypes by selecting to teach certain courses. Almost all industrial arts teachers are male and home economics teachers female (U.S. Dept. of H.E.W., 1978). Students tend to model their behavior after same sex teachers (Slaby and Frey, 1975). Research also demonstrates the modeling phenomena among older girls and young women, and in particular with regard to occupations (Shapiro, 1973).

Although teachers and counselors may not overtly discourage students from enrolling in non-traditional occupational programs, they may or may not encourage them to do so. Many vocational teachers reported making efforts to recruit non-traditional students into their programs and to eliminate classroom problems encountered by non-traditional students but these same teachers were found not to be

aware of problems non-traditional students were experiencing (Ott et al, 1980).

Previews of the literature regarding counseling behaviors revealed that counselors show disapproval or negative bias towards women students with non-traditional career plans (Thomas and Steward, 1971; Pietrofesa and Schlossberg, 1971). Counselors were found to reinforce traditional female occupational goals, although counselors reported that their own counseling behavior neither encouraged or discouraged student with regard to non-traditional careers (Ott, et al, 1980). Individual counseling is the technique of counseling which secondary vocational counselors felt was most useful in aiding female students in making career decisions, although students reported that technique to be least satisfactory (Kane, 1978). This supports the need of researching counseling behaviors as well as counselors' orientation towards sexism, in conjunction with each other.

Evidence points to a considerable interaction between students and teacher behavior, but it is not clear if the teachers' sex-biased behaviors account for and reinforce the students' sex-differentiated behaviors, or vice-versa (Safilios-Rothchild, 1979). Research does support the idea that teachers' behaviors affect the development of students' values and expectations (Leacock, 1969; Lee and Kader, 1974; Rosenthal and Jacobson, 1968; Sadker and Sadker, 1974; Steele, 1974). Actual and potential impact of teachers' behaviors on changing students' sex stereotypic attitudes has been substantiated by Levy (1972), Hughes (1973) and Sadker, Sadker and Simon (1973). As Kutner (1980) states: "Although the influence on teachers and faculty of their own sex stereotypes is frequently recognized as

contributing to sex discrimination in education, the significance of sex stereotypes and sex role attitudes of students themselves is less often noted."

Results of research on the behaviors of educators, and especially vocational teachers and counselors, poses many questions. The types of behaviors measured and the system for measuring them (i.e., self-report, observation, student report) are factors which can result in different findings. The degree to which teacher or counselor behaviors are determined by their own attitudes and awareness and the degree to which their behaviors are influenced by students' sex stereotyped behaviors has not been determined. The positive effect of teachers' sex fair and affirmative behaviors on students sex stereotyped attitudes and expectations does seem to be well documented.

A 1979 literature review by Wirtenberg, revealing only seven studies of the effects of sex stereotypic behavior, attitudes and knowledge on junior high students concluded that there is a great need for the introduction of interventions at this crucial developmental stage and for careful analysis of the relative effectiveness of different strategies for promoting students potential beyond that of sex stereotyped expectations, behaviors and achievement.

SUMMARY

There seems to be a paucity of research on the degree of knowledge of vocational educators about changing family and work force roles. Research in this area was directed mainly at measuring knowledge of vocational educators about limiting efforts of sex stereotyping and its relationship to occupational choice.

Research on sex stereotyped attitudes of vocational educators has been extensive with most of the studies dealing with educators in a given state. Measurement of attitudes generally focused on sex stereotyped perceptions about male and female behaviors. Females have consistently been found to be more liberal in their attitudes than males. However, both males and females were found to hold stereotypical perceptions about characteristics of males and females. Home economics educators were found to be more liberal than business, agriculture and trade-industrial educators. Though counselors were found to be more knowledgeable than some other groups, they were still found to hold somewhat conservative attitudes.

Research on behaviors of vocational teachers seems to be sparce. Results of self-reporting of behavior may or may not reflect actual classroom behaviors. When measures of both attitudes and self-reporting of behaviors are used, it would seem to provide a better basis for predicting actual classroom behaviors in that the attitude measure can be an indicator of awareness of what sex stereotyping is. The only research found dealing with observed teaching behaviors was that of Wirtenberg and dealt with junior high home economics and industrial arts. Studies indicate that attitude change alone may not be adequate as an indicator of change in classroom behaviors because

of the possible interaction between students sex-stereotyped behaviors and the teachers' behaviors

Other than the Hantjis study, which used vocational educators self-reporting of behaviors, the review of the literature did not reveal any studies which deal simultaneously with all three dependent variables of knowledge, attitudes and behaviors. Neither were any studies found that dealt with two or more of the dependent variables in conjunction with the independent variables of educator's sex, vocational subject matter area and sex of their students.

Research findings support the assumption that sex stereotyped teaching and counseling behaviors must be eliminated if students' attitudes and behaviors are to be expanded beyond that of traditional work and family activities. The research also tends to support the concept that sex stereotyped or sex fair attitudes and behaviors are linked but does not substantiate it. That teachers' behaviors can result in changes in students' attitudes and expectations has been well documented.

A great deal of the literature examining sex equity knowledge, attitudes and behaviors of vocational educators has resulted from VEA funded projects. Many of the resources used for this literature review were project reports and papers given at meetings. Unfortunately, the system of funding projects often results in reports of outcomes not receiving large dissemination. Another problem in drawing conclusions from the various research findings that were reviewed is the variability in instrumentation and application of concepts.

The review of research substantiates the fact that the data analyzed for this research report is very comprehensive. All three

dependent variables of vocational educators' knowledge, attitude and behavior were measured, with the behavior being that reported by students of the teachers. In addition, the independent variables of sex of educator, subject matter area and sex of student are considered. The change overtime and pre-past change for dependent variables examined in this research were not identified as factors included in any of the literature that was reviewed.

II

DESIGN OF STUDY

This chapter explains the framework in which the data was collected, the instruments used for data collection and the subjects from whom data was collected. The research objectives are stated as null hypotheses.

Framework in Which Data Was Collected

The data analyzed for this study was collected so that credit in-service courses on sex equity which were offered over a period of four years could be evaluated. The data represents seventeen offerings of the course in various locations throughout New York State. Initial data on knowledge, attitudes and behaviors were collected at the beginning of each course. Post-attitude data was collected at the end of the course and behavior data was collected approximately six months after participants completed the course.

Brief Description of the Course

The major purpose of the course is to train vocational and other educators to be change agents within their buildings and school districts for the purpose of facilitating the elimination of sex discrimination, stereotyping and bias. Course content includes four distinct components. The component of sex equity addresses the negative

effects of sex stereotyping and bias, the changing work force and family, legislation, stereotyped expectations of students, sex fair behaviors of educators, sexism in language and educational materials plus other sex equity issues. The other three content components are evaluation, the process of change and facilatory leadership or group process skills. These four areas of information are integrated and used by participants in planning and conducting projects to effect change for educational sex equity.

The course is offered over a two-semester period for three credits per semester. Classes meet approximately every three weeks. Three textbooks and nine learning packets that include various readings and assignments are used by class members for independent study and group activities. Class members are required to plan and implement a project for effecting change in their professional situation.

Time and Location of Courses

The following chart presents the dates and locations of the seventeen classes. Classes offered during the same period of time are grouped into series of classes for a total of seven different series. The classes in the last series, Series VI, were four rather than six-credit courses. This variation was done for the purpose of determining how effective the course would be if offered as a four rather than as a six-credit course.

Chart 2-1

Dates and Locations of Classes

Series	Class No.	Location	1977 Nov-Jan	1978 Jan-June	1978 Sept-Dec	1979 Jan-June	1979 Sept-Dec	1980 Jan-June	1980 Sept-Dec	1981 Jan-June
I	1	Ithaca	////	////						
	2	Auburn	////	////						
II	3	Rochester		@@@@	@@@@					
	4	Syracuse		@@@@	@@@@					
III	5	New Paltz			$$$$	$$$$				
	6	Monroe			$$$$	$$$$				
IV	7	Yorktown Hts.				****	****			
	8	Mount Morris				****	****			
	9	Buffalo				****	****			
V	10	Suffolk					¢¢¢¢	¢¢¢¢		
	11	Ogdensburg					¢¢¢¢	¢¢¢¢		
VI	12	Corning							&&&&	&&&&
	13	Elmira/Horseheads							&&&&	&&&&
	14	Nassau							&&&&	&&&&
VII*	15	Utica/Rome							####	####
	16	Oswego/Mexico							####	####
	17	Suffolk							####	####

*Series VII classes were four-credit courses. All others were six-credit courses.

Instruments and Data Collection Procedures

Three different instruments were used for data collection: one to measure knowledge; one to obtain student ratings of teacher behaviors; and one, having two versions, to measure attitudes. Data collection included having participants use code names.

Use of Code Names

At the beginning of each course, participants were instructed to make up a code name to use during the course when responding to questionnaires. This procedure was used to protect the identity of course participants, to increase the possibility of honest responses and to provide a means by which questionnaire results could be returned to them. The reasons for the use of code names was explained to class participants. Materials with code names were returned by placing them on a table and allowing class members to pick them up during class sessions.

During the course, participants were requested to write in their code name and check their sex and subject matter area on a code name information card. For various reasons, some people did not complete all aspects of the card. This, plus other factors as people forgetting their original code name, resulted in some data that could not be categorized by sex or subject matter area of the educator.

Measurement of Knowledge

Initially, for the first two series of classes, the knowledge quiz consisted of twenty-five true-false items. This was changed to a twenty item true-false quiz for the remaining classes. The quiz was scored on the basis of percent correct so results from both forms would be comparable. A copy of the quiz is provided in Appendix A. Examination of it demonstrates face validity in respect to having items about the changing family and labor force in terms of both males and females. Responses to individual items have continuously demonstrated items to be discriminatory.

Administration of the knowledge quiz was done at the beginning of the first class. Participants responded on a carbonized set of the quiz and handed in one copy with their code name on it for scoring. The second copy was used by them for a class activity on the changing work force and family. Because the course provided in-depth information about the changing work force and family, a post measure of knowledge comparable to the pre-measure was not deemed practical.

Attitude Measure

A Likert-type questionnaire, consisting of thirty-two items was used for collecting attitudinal data. It was developed by S. Shatz specifically for the Project MOVE classes and has items concerning changing work force and family roles of both men and women. Items are scored 0 if the response indicates disagreement with expanded

roles and a 1 for agreement with expanded roles. A total of thirty-two points is possible. Some items are scored in reverse because they are stated in a negative manner. The higher the score, the more tolerant the attitude of a person toward men and women sharing wage earning and home-related responsibilities.

Two forms of the attitude instrument are used. The pre-assessment form is entitled "What Do You Feel" and the post-assessment form, "Class Participants Questionnaire". A copy of each form is provided in Appendices B and C, respectively. The post-assessment form consists of the thirty-two items on the pre-assessment form plus eighteen dummy items which are not scored but are used to disguise the questionnaire. The original thirty-two items are also arranged in a different order on the post-assessment form than on the pre-assessment form.

The split-half reliability of the thirty-two item instrument, "What Do You Feel", was established at .90. Content validity was established by having judges rate items. Empirical validity was established by comparing responses of males and females in non-traditional roles to responses by males and females in traditional roles.

The pre-assessment form, "What Do You Feel", was administered to class members during the first class session. The post-assessment form, "Class Participants Questionnaire", was administered during the last class session of the second semester of the course. Participants were requested to write their code names on both questionnaires.

Behavior Measure

A "Student Checklist" of twenty-five items concerning sex stereotyped and sex fair classroom teaching behaviors was developed by S. Shatz and C.J. Farris for measuring student perceptions of teacher behaviors. Instructions to students include having them identify their sex and checking yes or no for each item as to whether or not their teacher displays that behavior. If the class consists of students of only one sex, they respond to only the first ten items. The remaining fifteen items refer to how a teacher treats boys and girls in the same classroom. A copy of the checklist is appended (Appendix D).

The "Student Checklist" was printed so it could be machine scored. A computer program was written for summarizing the student responses for each teacher with the total score given as a percentage. The higher the percentage, the more sex fair the students' perceptions of the teacher's behaviors.

The reliability of the instrument was established at .91. Content validity was established by various judges, including secondary teachers who demonstrated an understanding of sex biased teaching behaviors. Empirical validity was established by comparing the ratings of student teachers by cooperating teachers and college supervisors with the ratings done by the pupils of the student teachers. The correlation coefficient obtained from this data was .83.

At the first class, teachers were given packets of twenty-five "Student Checklists" plus detailed directions on administering it.

The teachers were instructed to give the checklist to a class having both males and females if possible. The directions included having a student collect the checklists and sealing them in an envelope. The teachers returned the packet of checklists, with their code name on it, at the second class meeting. The post-assessment was conducted approximately six months after completion of the course to insure having a different group of students respond to the checklist. Former class members who were classroom teachers were sent a packet of checklists with the instructions for administering them. Instructions were the same as they were for the initial administration.

Subjects

The subjects from whom data was collected consisted of people who enrolled in the Project Move courses during a four-year period. This section provides information about the subjects.

Self Selecting Factors

In that all subjects attended the first class session with the possible intention of enrolling in the course, they do not represent a random sample of secondary educators. Reasons for enrolling in the course included the need to earn additional college credit for obtaining provisional or permanent certification or the possibility of increased salary when earning additional credit hours. Many enrolled in the course because of their interest in the topic of sex

equity. A few enrolled because of the wishes of their administrators. There is even the possibility that some enrolled because the substantive issues presented as part of the course provided a challenge to those who disagreed with the orientation of the course. The fact that the course was provided tuition free was a major factor for educators enrolling.

Geographic Representation

New York State is quite diverse in the types of geographic regions and communities found within its borders. The course sites throughout the State included rural, suburban, urban and combinations of these types of locations. This factor increases the generalizability of findings. The chart on the next page gives the type or types of communities each class represented. Note that for some classes, participants represented both urban and suburban or suburban and rural communities.

Chart 2-2

Type of Communities Represented by Classes

Series	Class No.	Location	Type of Communities
1	1	Ithaca	Rural
	2	Auburn	Rural
2	3	Rochester	Urban/Suburban
	4	Syracuse	Urban/Suburban
3	5	New Paltz	Rural
	6	Monroe County	Rural/Suburban
4	7	Yorktown Hts.	Suburban
	8	Mount Morris	Rural
	9	Buffalo	Urban/Suburban
5	10	Suffolk County	Suburban
	11	Ogdensburg	Rural
6	12	Corning	Rural
	13	Elmira/Horseheads	Rural
	14	Nassau County	Suburban
7	15	Utica/Rome	Urban/Suburban
	16	Oswego/Mexico	Rural
	17	Suffolk County	Rural/Suburban

Characteristics of Participants

Table 2-1 presents information about the characteristics of class participants. The overall average age of participants was 38.6 years. The only series with an average age varying from this by more than 1.5 years was Series VII, the last series offered. It was also the only series of classes offered for four rather than six credits. Composition of series by sex did not vary greatly.

Table 2-1

Characteristics of Class Participants

Characteristics	Series I	Series II	Series III	Series IV	Series V	Series VI	Series VII	Overall Average
Average Age	40.5	39	37.5	39	37	41.1	36.4	38.6
REMAINING FIGURES REPORTED BY PERCENT								
Sex:								
Male %	50	43	39	50	34	46	48	44
Female %	50	57	61	50	66	54	52	56
Education:								
Associate Degree %	0	4	2	1	0	1	3	1.5
Bachelors (4yr.) %	65	39	42	39	31	44	57	43.9
Masters %	20	50	48	60	54	50	34	45.1
No Degree Reported %	15	7	8	10	15	5	6	9.4
Certification:								
Provisional %	35	23	23	14	20	14	23	22
Permanent %	40	76	72	85	63	78	73	70
No Certification Reported %	25	1	5	1	17	8	4	8

Almost one-half of class participants had a masters degree. The individuals having an associate degree were mainly occupational teachers teaching in BOCES programs. The large percentage of educators with permanent New York State teacher certification (70%) is not too surprising in that over eighty percent of New York State teachers are permanently certified.

Table 2-2 gives a breakdown by sex and subject matter area of participants. The traditionally male and female subject areas of industrial arts and home economics were represented by teachers of the expected sex.

Table 2-2

Number of Male and Female Educators by Subject Matter Areas

Subject Matter Area	Male	Female	Not Known	Total
Guidance/Counseling	36	43	7	86
Industrial Arts	67	2	1	70
Trade and Industry	38	14	2	54
Business	18	34	1	53
Consumer-Homemaking	0	79	3	82
Human Services	3	37	0	40
Others	38	59	191	288
Total	200	268	205	673

The subject area of guidance/counseling was made up of junior and senior high and BOCES counselors. The industrial arts and consumer homemaking teachers were junior and senior high teachers. Trade and industry teachers included teachers of auto mechanics, welding, masonry, electricity, machine shop, plumbing, carpentry and other trades plus data processing and cosmetology. Business education included a few teachers of distributive education. Human service teachers included nursing, dental health and food services. The category of other included a wide variety of professionals as librarians, media specialists, career education specialists, general secondary education teachers and ones who did not identify their subject area.

Table 2-3 gives a further breakdown by subject matter areas, sex of teachers for the subject matter areas and the sex of the classes the teacher had respond to the "Student Checklist." The teachers were instructed to give the checklist to a class of both males and females if possible. In that some teachers did not want to administer the checklist or dropped out of the course after completing the knowledge quiz and attitude questionnaire but prior to administering the checklist, the number of teachers for the subject matter areas is not quite as large as the numbers provided in Table 2-2.

As one would expect, the largest number of all male classes were taught by trade and industry and industrial arts teachers. The largest number of all female classes were taught by business and consumer homemaking teachers.

Table 2-3

Subject Matter Area, Sex of Teacher and Sex of Classes Responding to Checklist

Subject Matter Area and Sex of Teacher	All Male Classes		All Female Classes		Mixed Classes		Total	
	#	%	#	%	#	%	#	%
Industrial Arts								
Male	5	8.9	3	5.4	46	82.1	54	96.6
Female	0	0	0	0	2	3.6	2	3.6
Trade and Industry								
Male	17	39.5	1	2.3	13	30.2	31	72
Female	2	4.7	2	4.7	8	18.6	12	28
Business								
Male	0	0	3	6.5	12	26.1	15	32.6
Female	0	0	6	13.0	25	54.3	31	67.3
Consumer Homemaking								
Male	0	0	0	0	0	0	0	0
Female	3	4.3	6	8.7	60	87.0	69	100
Human Services								
Male	0	0	0	0	2	6.5	2	6.5
Female	1	3.2	12	38.7	16	51.6	29	93.5
Other								
Male	2	3.2	1	1.6	21	33.3	24	38.1
Female	1	1.6	4	6.3	34	54.0	39	61.9

Course Completers and Non-Completers

Of the 673 people for whom initial data was collected, post-data was collected for 401. Those who did not complete both semesters (six credits) of the course were categorized as non-completers. Some of these people dropped out of the course during the first semester. Quite a few of the others completed the first three-credit course but did not elect to continue with the second semester. A small number dropped out during the second semester.

There were numbrous reasons for people not completing one or both semesters. Personal and professional responsibilities were the most common reasons. Sometimes loss of job or a new job assignment made it impossible for the person to continue. Some people dropped out because of the amount of work required for the course.

Research Hypotheses

The hypotheses used for analyses of data are stated as null hypotheses. In that no directional hypotheses are given, the significance level reported for means tests will be that for two-tailed probabilities.

1. There will be no significant correlations between knowledge, attitudes and behaviors of vocational educators:
   a) as a total group,
   b) by sex,
   c) by subject matter area.

2. There will be no significant differences in knowledge, attitudes and behaviors of the total group of vocational educators when compared:
   a) by series and class,
   b) for completion and non-completion of the course,
   c) over time,
   d) for pre and post course scores.

3. There will be no significant differences in knowledge, attitudes and behaviors:
   a) between male and female vocational educators,
   b) by sex for completion and non-completion of the course,
   c) by sex when compared over time,
   d) by sex for pre and post course scores.

4. There will be no significant differences in knowledge, attitudes and behaviors:
   a) between subject matter areas,
   b) between course completers and non-completers for each subject matter area,
   c) over time for each subject matter area,
   d) by sex for selected subject matter areas,
   e) for pre and post course scores of subject matter areas.

5. There will be no significant differences in knowledge, attitudes and behaviors:
   a) between vocational educators of all male, all female and coed classes,
   b) by sex of teacher for all male, all female and coed classes,
   c) by subject matter areas for all male, all female and coed classes.

6. There will be no significant differences in student ratings of 25 teaching behaviors:
   a) for male and female teachers,
   b) by subject matter area,
   c) by sex of class,
   d) by sex of student.

III

TOTAL GROUP RESULTS

The results of data analyses for all subjects are presented in terms of the correlations between the dependent variables and analyses for each variable. Analyses of data by variable include results by series and class, for course completers and non-completers, over time and for amount of change in attitudes and behaviors of course completers.

Correlations Between Dependent Variables

The measures of educators' knowledge, attitudes and classroom behavior served as the dependent variables for this study. To determine the degree of relationship between any two combinations of the pre-measures of these variables, they were analyzed using a Pearson Product Moment correlation. Correlations were computed for total group comparisons and for comparisons by sex and by subject matter area.

Total Group Correlations

Table 3-1 presents the correlations between the three dependent variables using the pre-scores of total group data. Although the actual correlation between any two measures did not exceed .36, all three correlations were significant at a .001 or higher level of

probability. Having correlations this low being significant was, at least in part, due to the large number of scores which were compared. It is of interest that the highest correlation was between knowledge and attitudes and the lowest was between knowledge and behavior. The fact that knowledge, in and by itself, does not result in behavioral change has been well documented by educational research.

Table 3-1

Correlations Between Total Group
Knowledge, Attitudes, and Behaviors

Variables	n	r	p
Knowledge/Attitude (K/A)	511	.36	.0001
Knowledge/Behavior (K/B)	342	.17	.001
Attitude/Behavior (A/B)	343	.21	.0001

Correlations by Sex of Educator

The following table (Table 3-2) gives the correlations and the probabilities of the correlations between knowledge, attitudes and behavior for male and for female educators and for subjects whose sex was unknown. As with the total group, the correlations between knowledge and attitudes, by sex, were the highest. It is of interest that the correlation and level of significance for

knowledge and behavior was considerable higher for males than for females.

Table 3-2

Relationships Between Pre-Course Knowledge, Attitudes and Behaviors by Sex

Sex	Variables	n	r	p
Male	K/A	179	.29	.0001
	K/B	122	.28	.002
	A/B	122	.27	.003
Female	K/A	240	.24	.0002
	K/B	179	.03	.70
	A/B	178	.14	.065
Sex not reported	K/A	92	.34	.0008
	K/B	41	.33	.036
	A/B	43	.33	.031

Correlations by Subject Matter Areas

Table 3-3 presents the correlations and their probabilities between knowledge, attitude and behavior scores for each of the seven subject matter areas. It should be noted that because behavior scores are not obtained for counselors, the only comparison possible for them was between knowledge and attitude.

With the exception of the trade and industry and business

teachers, the pattern of correlations between knowledge and attitudes continued to be the strongest. The subject matter areas varied in respect to which two variables had the lowest correlation. The two groups which were predominantly male, industrial arts and trade and industry, had higher correlations between knowledge and behaviors than the other groups which were composed of both sexes or mainly females. It should also be noted that males, on the average, had lower knowledge and behavior scores.

Table 3-3

Relationship Between Pre-Course Knowledge, Attitudes, and Behavior by Subject Matter Area

Subject Matter Area	Variable Relationship	n	r	p
Counselors	K/A	78	.26	.02
Industrial Arts	K/A	58	.39	.002
	K/B	55	.22	.11
	A/B	53	.04	.78
Trade and Industry	K/A	48	.20	.18
	K/B	42	.42	.005
	A/B	42	.15	.36
Business	K/A	50	.14	.33
	K/B	42	.01	.97
	A/B	43	.35	.02
Consumer Homemaking	K/A	70	.34	.004
	K/B	66	.02	.87
	A/B	69	.12	.32
Human Service Studies	K/A	34	.20	.25
	K/B	32	.12	.51
	A/B	31	.17	.36
Other	K/A	166	.36	.0001
	K/B	96	.20	.06
	A/B	96	.35	.0004

Correlations between the dependent variables of knowledge, attitudes and behaviors for the total group indicate that there are existing relationships. Further comparisons by sex and subject matter also indicate these are important factors which effect the degree of correlations between the dependent variables. With the exception of trade and industry and business teachers, the correlations between knowledge and attitudes were the highest by subject matter area, by sex and for the total group.

Total Group Knowledge

Knowledge score averages for the total group are presented by series and by classes that composed each series. Knowledge for those who completed the course is compared with those who did not complete it and scores obtained in 1977 are compared with those obtained in 1981.

Knowledge by Series and Class

Table 3-4 gives the knowledge means and standard deviations by series of classes and for each class within each series. The knowledge quiz given to the first two series consisted of twenty-five items and of twenty items for all other series. The scores for the first two series were adjusted to be the equivalent of the scores for the twenty-item quiz given to the other classes.

Over the three year period, the average knowledge score for each

series and for most classes did not differ significantly. The only major exception was Class 16, which inadvertently played a knowledge bingo game prior to taking the knowledge quiz. The items and fact sheet used to play this game include the items on the knowledge quiz which resulted in Class 16 having a higher score. The grand mean for all classes, with Class 16 averaged in, was 14.41. Without the inclusion of Class 16, the overall average was 14.29.

It is of interest that the three classes which had the lowest averages, 13.71 and lower, all represented rural areas of the state (Class 2, Auburn; Class 10, Canton-Ogdensburg; Class 17, Mexico). These classes also represented the years of 1977, 1979, and 1980.

Table 3-4 follows on the next page.

Table 3-4

Average Knowledge Score by Series and Class

Time	Series	Class	n	$\bar{x}$	sd
Nov., 1977	I		18	14.22	3.65
		1	11	14.54	2.73
		2	7	13.71	4.39
Jan., 1978	II		53	14.98	2.28
		3	27	14.41	2.27
		4	26	15.58	2.28
Sept., 1978	III		82	14.27	2.14
		5	40	14.22	2.14
		6	42	14.31	2.25
Jan., 1979	IV		100	14.39	2.21
		7	28	14.57	1.99
		8	35	14.43	2.28
		9	37	14.22	2.35
Sept., 1979	V		90	14.10	2.31
		10	38	13.29	2.53
		11	52	14.69	2.06
Sept., 1980	VI		113	14.28	2.30
		12	40	14.47	2.53
		13	37	14.30	2.28
		14	36	14.06	2.07
Oct., 1980	VII*		92	14.73	2.49
		15	20	14.30	2.06
		16**	37	16.05**	2.53
		17	35	13.57	2.84

*Series VII were four rather than six credit courses

**Class 16 inadvertently played the "Knowledge Bingo" game prior to taking the knowledge quiz which resulted in an inflated score. The mean for Series VII is 13.84 when Class 16 is not included.

Knowledge of Course Completers and Non-Completers

Table 3-5 gives the means, standard deviations, t value and its level of probability for comparing initial knowledge of course completers and non-completers. For the total group, non-completers had a significantly lower knowledge score than the educators who completed the course.

Table 3-5

Knowledge of Course Completers and Non-Completers

Group	n	$\bar{x}$	sd	f	t*	df	p
Completers	346	14.59	2.39	1.01	2.43	428	.02
Non-Completers	204	14.09	2.38				

*Two-tailed t test for unequal variances

Knowledge Scores Over Time

Table 3-6 compares the knowledge scores of educators who enrolled in the initial two series (November, 1977 and January, 1978) and in the last two series which began in the Fall of 1980. Though the 1980 group had a slightly lower average score, the groups did not differ significantly over time.

Even though variation by class and by series for initial knowledge about the changing work force and family is apparent, no

significant change and no trend of increased knowledge was found from 1977 to 1980. Comparison of knowledge of educators who completed the course with those who did not complete it found completers had a significantly higher knowledge score.

Table 3-6

Comparison of Knowledge Scores Over Time

Year	n	$\bar{x}$	sd	f	t*	df	p
1977	71	14.79	2.63				
				1.08	.85	118	.39
1980	205	14.48	2.53				

*Two-tailed t test using separate variance estimate

Total Group Attitudes

Attitude scores for the entire group are presented by series and classes. Analyses for comparing course completers with non-completers, for determining if there were attitude change over time and for determining the amount of attitude change resulting from the course are also given in this section.

Attitudes by Series and Class

The following table (Table 3-8) gives the average pre-attitude score and standard deviation for each series of classes and for

each class that made up a series.

Table 3-7

Average Pre-Attitude Score by Series and Class

Time	Series	Class	n	$\bar{x}$	sd
Nov., 1977	I		20	25.25	4.47
		1	11	24.45	4.93
		2	9	26.22	3.96
Jan., 1978	II		62	24.11	5.11
		3	31	23.97	5.20
		4	31	24.26	5.01
Sept., 1978	III		86	24.81	5.51
		5	44	23.73	5.44
		6	42	25.95	5.58
Jan., 1979	IV		109	24.27	4.50
		7	31	25.10	3.39
		8	39	25.33	4.46
		9	39	22.54	5.66
Sept., 1979	V		99	23.93	5.21
		10	43	22.72	5.49
		11	56	24.86	4.93
Sept., 1980	VI		115	24.11	5.98
		12	40	23.17	6.35
		13	37	25.32	5.22
		14	38	23.92	6.29
Oct., 1980	VII*		91	24.36	5.17
		15	20	24.00	4.38
		16	38	25.63	4.78
		17	33	23.12	6.17

*Series VII were four rather than six credit courses

The overall mean for the entire sample was 24.30. Over the three year period, the average attitude score by series and class did not have any significant variation. There was also no apparent pattern of lower or higher scores on the basis of the geographic area of the state.

Attitudes of Course Completers and Non-Completers

The pre-attitude means and standard deviations for all course completers and non-completers along with the value and probability of the t test are given in Table 3-8. Though non-completers had a lower average score than completers, they did not differ significantly.

Table 3-8

Pre-Attitude Scores of Course Completers and Non-Completers

Group	n	$\bar{x}$	sd	f	t*	df	p
Completers	343	24.64	5.52				
				1.32	1.70	552	.09
Non-Completers	239	23.91	4.80				

*Two-tailed t test for unequal variances

Attitudes Over Time

Table 3-9 gives the means and standard deviations for attitude scores obtained in November, 1977 and January, 1978 and those obtained

in September, 1980 along with the value and probability of a t test for comparing the two groups. No significant difference showing change was found over the three year period of time.

Table 3-9

Comparison of Pre-Attitude Scores Over Time

Year	n	$\bar{x}$	sd	f	t*	df	p
1977	82	24.39	4.93				
				1.34	.25	171	.81
1980	206	24.22	5.70				

*Two-tailed t test using separate variance estimate

Comparison of Pre-Post Course Attitudes

The data concerning the amount of attitude change for all educators who completed the Project MOVE course is presented in Table 3-10. When the post and pre-scores of course completers were analyzed with a paired t test, the increase in positive attitudes was significant at a level of probability beyond that of occurring by chance one out of 1000 times.

Table 3-10

Comparison of Pre and Post Attitude Scores

Measure	$\bar{x}$	sd	n	t*	df	p
Pre	24.84	5.22				
Post	27.16	4.57				
Difference	2.32	3.55	247	10.24	246	.000

*Paired t test, two-tailed probability

Analyses of total group attitude data found no apparent trends by geographic areas of the state or over time. Initial attitudes of educators who enrolled in the project course but who did not complete the six-credit two-semester sequence were lower but not significantly different from attitudes of those who completed the six-credit course. Attitudes of those who completed the course changed significantly (.000 p) in a positive direction.

Total Group Behavior Scores

Pre-behavior scores are based on results of teachers administering the "Student Checklist" to a class of their students at the beginning of the Project MOVE course. The results are presented here by series and classes, to compare course completers with non-completers, to determine if there has been change in these scores between 1977 and 1980 and to determine if, as a result of the course, there was significant change.

Behavior Scores by Series and Class

Table 3-11 gives the average pre-behavior score and standard deviation for each series and for each class which made up a series. Due to the actual physical move of the project from one institution to another, the administration of the "Student Checklist" for obtaining behavior scores for Series V, Classes 10 and 11, was delayed until after the teachers had carried out various sex equity activities with their students. It is believed that the sensitizing of students to sex stereotyped and bias behaviors resulted in these two classes receiving considerably lower scores.

The grand mean for all classes and series is 60.99 with a standard deviation of 16.52. Without Series V, the grand mean is 65.28 and the standard deviation is 13.58. Though there was variation by series, there was as much or more variation by class within each series. An overall trend for increased behavior scores appears to exist. No apparent trend by type of geographic area represented by classes was identified.

Table 3-11 follows on the next page.

Table 3-11

Average Pre-Behavior Score by Series and Class

Time	Series	Class	n	$\bar{x}$	sd
Nov., 1977	I		16	69.75	23.56
		1	9	65.56	20.75
		2	7	75.14	26.07
Jan., 1978	II		40	58.55	7.43
		3	19	56.05	6.65
		4	21	60.81	8.14
Sept., 1978	III		63	65.38	12.62
		5	32	65.53	11.20
		6	31	65.23	13.90
Jan., 1979	IV		60	63.23	11.69
		7	20	63.45	11.46
		8	18	65.67	10.13
		9	22	61.05	13.27
Sept., 1979	V*		47	31.72*	9.05
		10	30	33.60	10.36
		11	17	28.41	7.52
Sept., 1980	VI		84	66.25	10.73
		12	38	63.42	12.41
		13	24	69.12	6.10
		14	22	68.00	12.41
Oct., 1980	VII		60	69.03	12.54
		15	12	65.25	14.95
		16	26	71.77	10.42
		17	22	67.86	11.82

*Administration of the "Student Checklist" for obtaining behavior scores was delayed until after teachers had carried out awareness activities with their classes.

Behavior Scores of Course Completers and Non-Completers

The means and standard deviations plus the t test results for comparing the two groups is presented in Table 3-12. Though non-completers had a slightly lower average score, they did not differ significantly from course completers. (Series V data was not used).

Table 3-12

Pre-Behavior Scores of Course Completers and Non-Completers

Group	n	$\bar{x}$	sd	f	t*	df	p
Completers	244	61.49	17.26				
				1.33	.83	285	.41
Non-Completers	126	60.05	15.05				

*Two-tailed t test for unequal variances

Behavior Scores Over Time

Table 3-13 presents the comparison of behavior scores obtained from Series I and II in 1977 (and January of 1978) with those obtained in September and October of 1980. The mean for

scores obtained in 1980 was significantly greater, at the .01 level, than the scores obtained in 1977.

Table 3-13

Comparison of Pre-Behavior Scores Over Time

Year	n	$\bar{x}$	sd	f	t*	df	p
1977	56	61.75	14.56	1.59	2.61	83	.01
1980	144	67.41	11.57				

*Two-tailed t test using separate variance estimate

Comparison of Pre-Post Course Behavior Scores

The means, standard deviations and paired t test results for determining behavior change based on the total sample is presented in Table 3-14. The data used for the comparison was limited to three series of classes, Series II, III, and IV. Series I post-data was not used because teachers administered the "Student Checklist" to the same pupils. This resulted in the sensitized students rating them even lower than on the pre-assessment. The same phenomenon occurred due to the initial administration of the "Student Checklist" by Series V occurring after the teachers had sensitized their students. After Series I, post-data collection

for behavior scores was carried out the next school year. Post-behavior scores for Series VI and VII had not been completely collected and analyzed at the time of this study.

Table 3-14

Comparison of Pre and Post Behavior Scores

Measure	$\bar{x}$	sd	n	t*	df	p*
Pre	64.65	15.86				
Post	69.16	11.50				
Difference	4.51	17.75	69**	2.11	68	.04

*Paired t test, two-tailed probability

**Series I and V not included due to results being affected by pre-sensitizing of pupils. Post-scores for Series VI and VII were not collected at time of analyses.

Comparison of pre and post-behavior scores for three series (seven classes) using a paired t test found a positive change significant at the .04 level of probability. It is also of interest that the variance for the post-data was considerably less than that for the pre-data.

Summary

There was a trend for correlations between the measures of knowledge and attitudes to be higher than those between knowledge/behaviors and attitudes/behaviors. The correlations for the three dependent variables varied when examined by sex and subject matter. Evidently these factors have importance in how great the relationships are between the dependent variables.

Examination of total group data found course completers differed from non-completers by having significantly greater knowledge about the changing work force and family but not differing significantly in initial attitudes and behaviors. When data obtained in 1977 was compared to 1980 data, no significant change or trend in change for initial knowledge or attitudes was found. Comparison of pre-behavior scores found the 1980 teachers having a significantly greater average behavior score than those of 1977.

Analyses of pre-post data of course completers for attitude and behavior change found significance for both dependent variables. Class member attitudes changed significantly (.000 p) in a positive direction. Though the data analyses for behavior change was limited to that of only three series, teachers' behaviors became increasingly sex fair at the .04 level of probability.

IV

RESULTS BY SEX OF EDUCATORS

This chapter presents the results of data analyses for males and females. There are four major sections, one for knowledge, one for attitudes, one for behavior and one summarizing the chapter. In the first three sections, initial scores for males and females are compared, males and females who completed and who did not complete the six credit course are compared and those enrolled in the first series (1977) and the last series (1980) of the project courses are compared. Pre and post-course comparisons by sex on attitudes and behaviors are also given.

Knowledge

Class members responded to the knowledge quiz at the beginning of their first class session. The quiz consisted of twenty true or false statements about recent societal changes in the labor force and family. In that the course content focused on in-depth information about these changes, no post-measure of knowledge was administered to class members.

Comparison of Male and Female Knowledge

The following table provides the means, standard deviations and t value for comparison of male and female educators' knowledge of

changing work and family roles. Even with the more conservative separate variance estimate, females' knowledge was significantly higher than males' at the .000 level of probability.

Table 4-1

Comparison of Knowledge of Male and Female Educators

Sex	n	$\bar{x}$	sd	f	t*	df	p
Males	184	13.53	2.53		(pooled variance)		
				1.40	7.26	435	.000
Females	253	15.15	2.13		(separate variance)		
					7.07	353	.000

*Two-tailed t test

Knowledge of Course Completers and Non-Completers by Sex

The following table presents the results, by sex, for completers and non-completers of the seventeen Project MOVE courses. Neither male nor female non-completers differed significantly in initial knowledge from those of the same sex who completed the course. Examination of the means does demonstrate that both female completers and non-completers had higher knowledge scores than those of male completers and non-completers.

Table 4-2

Knowledge of Female and Male Course Completers and Non-Completers

Sex	n	$\bar{x}$	sd	f	t*	df	p
Male							
Completers	121	13.62	2.48	.60	.70	120	.49
Non-Completers	63	13.35	2.62				
Female							
Completers	186	15.27	2.06	1.26	1.42	106	.16
Non-Completers	67	14.82	2.31				

*Two-tailed t test using separate variance estimate

Knowledge Over Time by Sex

Table 4-3 provides the analyses, by sex, for educators who enrolled in the initial four classes (1977) and in the last six classes (1980). The results found no significant change over time in males' or females' knowledge of the changing work force and family. Again, females continued to demonstrate higher knowledge scores than males.

Table 4-3

Knowledge Over Time by Sex

Sex	n	$\bar{x}$	sd	f	t*	df	p
Male							
1977	27	13.59	2.43	1.03	1.07	46	.29
1980	71	13.00	2.40				
Female							
1977	44	15.52	2.49	1.49	.90	77	.37
1980	94	15.12	2.04				

*Two-tailed t test using separate variance estimate

Analyses of knowledge by sex demonstrated that females were significantly more knowledgeable than males about the changing work force and family. There was no significant difference by sex between completers and non-completers of the course or between the first (1977) and the last (1980) series of classes.

Attitudes

The attitude survey used for data collection deals with acceptance of expanded roles and behaviors for males and females. The survey was administered at the beginning of the course and a disguised version administered at the end of the course.

Comparison of Female and Male Attitudes

Table 4-4 provides the means, variances and t value for comparison of the initial or pre-measure of male and female attitudes towards expanding roles. Both the pooled and separate variance estimates found females held significantly more expanded or liberal attitudes than males (.000 p level of probability).

Table 4-4

Comparison of Initial Attitudes of Male and Female Educators

Sex	n	$\bar{x}$	sd	f	t*	df	p
Males	188	21.83	5.95		(pooled variance)		
				2.80	9.95	434	.000
					(separate variance)		
Females	248	26.39	3.56		9.32	286	.000

*Two-tailed t test

Attitudes of Course Completers and Non-Completers by Sex

The following table presents the pre-attitude results, by sex, for completers and non-completers of the seventeen project courses. Though no significant difference in initial attitude scores between male completers and non-completers was found, female completers were found to have significantly more expanded or liberal attitudes than female non-completers. Examination of the means verifies that both female completers and non-completers had higher average attitude scores than the male groups.

Table 4-5

Initial Attitudes of Female and Male Course Completers and Non-Completers

Sex	n	$\bar{x}$	sd	f	t*	df	p
Male							
Completers	122	21.45	6.27	1.41	1.25	154	.21
Non-Completers	66	22.53	5.29				
Female							
Completers	183	26.81	3.36	1.31	3.00	101	.003
Non-Completers	65	25.20	3.85				

*Two-tailed t test using separate variance estimate

Attitudes Over Time by Sex

The following table provides a comparison of attitudes, by sex, for educators who enrolled in the first series of courses (1977) and the last series (1980). Though there was a slight increase over time

for the attitude scores of females and a slight decrease for males, there was not a significant change for either sex.

Table 4-6

Attitude Over Time by Educators' Sex

Sex	n	$\bar{x}$	ss	$\bar{x}$	t*	df	p
Male							
1977	31	22.58	21.70	21.86	.79	1	.43
1980	86	21.60					
Female							
1977	40	25.88	30.49	22.61	1.61	1	.11
1980	95	26.92					

*Two-tailed t test using separate variance

Comparison of Pre-Post Course Attitudes by Sex

The data concerning the amount of change in attitudes of males and females is presented in Table 4-7. Paired or matched two-tailed t tests were used for determining if there was a significant change for either sex. Upon completion of the course, both sexes demonstrated significantly higher or more liberal attitudes about expanded family and work roles at the .000 level of probability with the gain made

by males greater than that of females.

Table 4-7

Differences Between Pre-Post Course Attitudes by Sex

Sex	n	$\bar{x}$	sd	t*	df	p
Male	89					
Pre		21.61	5.39			
Post		24.73	6.24			
Difference		3.12	4.26	6.92	88	.000
Female	134					
Pre		26.72	3.13			
Post		28.87	3.46			
Difference		1.85	2.87	7.47	133	.000

*Paired two-tailed t test, corrected for unequal variance

The following table compares the amount of attitude change of males with that of females. The comparison of difference means for both groups found that as a result of the course, males changed significantly more than females (.03 level of probability using separate variance estimate). Though they did not end the course with as high an average as females on the post-attitude measure, they did demonstrate a significantly greater gain than females.

Table 4-8

Comparison of Male and Female Attitude Change

Sex	n	$\bar{x}$	sd	f	t	df	p
Males	85	3.32	4.26		(pooled variance)		
				2.23	2.34	204	.02
Females	121	2.16	2.85		(separate variance)		
					2.19	136	.03

Analyses of attitude scores by sex found females having significantly more expanded or liberal attitudes about expanding roles than males. No difference in attitude scores between male course completers and non-completers was found, but female non-completers were significantly less liberal than completers. Even so, female non-completers held more liberal attitudes than males. No change in attitudes between the 1977 and 1980 classes was found for either males or females. Both males and females who completed the course showed a significant increase by having more expanded or liberal attitudes at the end of the course. Though both demonstrated significant change, the males were found to have demonstrated a significantly greater amount of positive change in attitudes than females.

Behaviors

The sex fair behaviors of teachers were measured by a class of their students rating their behaviors on the "Student Checklist"

instrument. With the exception of series I and V, teachers administered the checklist at the beginning of the course and approximately six months after completion of the course. Series I administered the post-behavior checklist to the same students which resulted in a negative change due to students being sensitized. Series V administered the pre-assessment after they had carried out activities with students. Low scores resulted because students were already sensitized. These factors were taken into consideration for the following data analyses.

Comparison of Female and Male Behavior Scores

The following table provides the data for comparing pre-behavior scores for males and females. The results of a t test between the two groups found they did not differ significantly on initial behavior as reported by their students. On the average, males did receive slightly lower scores than females.

Table 4-9

Initial Behavior Scores for Males and Females

Sex	n	$\bar{x}$	sd	f	t*	df	p
Males	127	59.98	14.76				
				1.36	(pooled variance) 1.28	312	.20
Females	187	62.37	17.19				
					(separate variance) 1.32	295	.19

*Two-tailed t test

Behavior Scores of Course Completers and Non-Completers by Sex

Table 4-10 provides the data for comparing the pre-behavior scores for both males and females who completed and who dropped out of the course. No difference was found on the basis of sex between those who completed the course and those who didn't for the behavior scores they received from their students. As with knowledge and attitudes, both female course completers and non-completers had slightly higher behavior scores than male completers and non-completers.

Table 4-10

Behavior Scores for Male and Female Course Completers and Non-Completers

Sex	n	$\bar{x}$	sd	f	t*	df	p
Male							
Completers	84	60.35	14.15				
				(pooled variance)			
				1.07	.40	125	.69
Non-Completers	43	59.26	15.13				
				(separate variance)			
					.39	82	.70
Female							
Completers	137	62.74	18.44				
				(pooled variance)			
				1.92	.48	185	.63
Non-Completers	50	61.38	13.30				
				(separate variance)			
					.55	120	.58

*Two-tailed t test

Behavior Scores Over Time by Sex

The following table provides a comparison of initial behavior scores, by sex, of those who enrolled in the course in 1977 with those who enrolled in it in 1980. A higher or more positive score was obtained for both males and females in the 1980 group with the increase for females being significant at the .002 level of probability.

Table 4-11

Behaviors Over Time by Sex

Sex	n	$\bar{x}$	sd	f	t*	df	p
Male							
1970	21	58.29	14.86	1.44	1.32	30	.20
1980	61	63.07	12.37				
Female							
1970	34	63.56	14.31	2.36	2.92	48	.005
1980	67	71.45	9.31				

*Two-tailed t test using separate variance estimate

Comparison of Pre-Post Course Behavior Scores by Sex

Table 4-12 presents the data for analysis of change in behavior scores by sex. Results of a paired t test for each sex

found both groups demonstrated a significant positive change or gain in their post behavior scores.

Table 4-12

Pre-Post Behavior Score Difference by Sex

Sex	n	$\bar{x}$	sd	t*	df	p
Male	15					
Pre		61.20	14.08			
Post		68.60	11.83			
Difference		7.40	10.97	2.61	14	.02
Female	44					
Pre		62.11	15.99			
Post		70.57	9.93			
Difference		8.45	17.56	3.19	43	.003

*Paired two-tailed t test corrected for unequal variance

The following table compares the amount of behavior change of males with that of females. Though both males and females demonstrated a significant positive change in behaviors, neither group changed significantly more than the other group.

Table 4-13

Comparison of Male and Female Behavior Change

Sex	n	$\bar{x}$	sd	f	t	df	p
Males	15	7.40	10.97				
				(pooled variance)			
				2.64	.31	55	.76
Females	44	8.45	17.56				
				(separate variance)			
					.38	41	.70

Analysis of behavior scores by sex found females having slightly higher, but not significantly different scores than males. No difference was found, by sex, for completers and non-completers of the course. From the time period of 1970 to 1980, behavior scores increased significantly for female teachers but not for male teachers. Both males and females who completed the course and for whom data was obtained showed a significant positive change in behaviors. Neither group demonstrated a significantly greater amount of change than the other group.

Summary

Females consistently scored significantly higher than males on initial sex fairness measures of knowledge and attitudes and slightly higher than males on classroom behaviors. Males who did not complete the course did not differ significantly from those who completed it in respect to initial knowledge, attitude and behavior scores. Female completers and non-completers did not differ on initial knowledge or behavior scores, but female non-completers had a significantly lower initial attitude score than the completers. The significantly lower attitude score of non-completing females was higher than that for male completers and non-completers.

No significant change in initial knowledge or attitudes between the 1977 and 1980 groups of males and females was found. Males' behavior scores from 1977 to 1980 increased but not at a significant level. Females did have a significantly higher behavior score in 1980 than in 1977.

Both males and females who completed the course demonstrated significant positive changes in attitudes at the .000 level of probability. The positive change in attitudes of males was significantly greater (.03 p) than the positive change for females' attitudes. Based on a limited amount of paired pre-post data, both males and females who completed the course showed significant positive changes in classroom behaviors as reported by students. For males, it was at the .02 level of probability; for females, it was at the .003 level of probability.

V

RESULTS BY SUBJECT MATTER AREAS

This chapter presents the results of data analyses by subject matter areas. The first section deals with the dependent variable of knowledge, the second with attitudes and the third with behavior score results. Each section provides results for comparison of subject matter areas by pre-assessment for those who completed and those who did not complete the six credits and the first (1977) and last (1980) series of courses. Pre and post course differences for completers are provided for attitudes and behavior scores. Comparison by sex for selected subject matter areas is also given.

The subject matter area categories are guidance counselors, industrial arts teachers, consumer homemaking teachers, business teachers, trade and industry teachers (which include cosmetology and food service teachers), human service teachers (which include health related occupations) and the category of other. This category includes library and media specialists; general subject matter area teachers such as mathematics, history and social studies; plus vocational educators who were not willing to or did not identify their subject matter area for various reasons. Some reasons might be that they were the only individual representing that subject matter area in the class and providing such information would have identified them by code name, they may not have been present when code name information was collected from class members, or they may have dropped out prior to the collection of such information.

Knowledge by Subject Matter Areas

As previously reported, a pre-measure but no post-measure of knowledge was administered. Participants responded to the twenty true-false item knowledge quiz at the beginning of the first class meeting for the course. The quiz consisted of items about the work force and family in terms of changing roles of males and females.

Comparison by Subject Matter Area

The following table gives the subject matter areas in rank order of highest to lowest average.

Table 5-1

Rank Order By Subject Matter Area Means For Initial Knowledge

Rank	Subject Matter Area	n	$\bar{x}$	sd
1	Consumer Homemaking	72	15.42	1.93
2	Counselors	80	15.04	2.00
3	Human Services	37	15.00	2.31
4	Business	50	14.52	2.57
5	Other	192	14.31	2.30
6	Industrial Arts	62	13.56	2.57
7	Trade and Industry	49	12.71	2.47

Table 5-2 provides the results of the analyses of variance for the seven subject matter areas. The level of significance of the f value (.000) indicated significant differences between subject matter areas on the basis of initial knowledge quiz results.

Table 5-2

Analyses of Variance Between Subject Matter Areas For Initial Knowledge

Source of Variation	df	ss	ms	f	p
Between Groups	6	309	44.14	8.39	.000
Within Groups	535	2846	5.26		
Total	541	3155			

Table 5-3 provides the results of a Least Significant Difference test between the means of the seven subject matter areas. Industrial arts and trade and industry teachers were found to be significantly less knowledgeable than the other subject matter areas. Business teachers were significantly less knowledgeable than consumer homemaking teachers and the category of other was significantly less knowledgeable than consumer homemaking teachers and counselors.

Table 5-3

Differences in Initial Knowledge
By Subject Matter Areas

Subject Matter Areas	CH	C	HS	B	O	IA
Consumer Homemaking (CH)						
Counselors (C)						
Human Services (HS)						
Business (B)	*					
Other (O)	*	*				
Industrial Arts (IA)	*	*	*	*	*	
Trade and Industry (TI)	*	*	*	*	*	

*Significant at .05 level of probability using LSD Test for difference between means

Comparison of Course Completers and Non-Completers

As previously explained, the category of non-completers included those who did not complete all six credits of the course. Many completed the first three credits but not the final three credits. Some dropped out during the first or second half of the course due to personal or professional demands upon their time. Some dropped out or did not complete the course for various other reasons, such as the amount of work the course required.

Table 5-4

Initial Knowledge of Course Completers and Non-Completers by Subject Matter Area

Subject Matter Area	n	$\bar{x}$	sd	f	t*	df	p
Counselors							
Completers	58	15.16	1.96	1.14	.85	78	.40
Non-Completers	22	14.73	2.10				
Industrial Arts							
Completers	50	13.34	2.56	1.05	1.43	60	.17
Non-Completers	12	14.50	2.50				
Trade and Industry							
Completers	30	13.30	2.26	1.27	2.17	47	.03
Non-Completers	19	11.79	2.55				
Business							
Completers	39	14.59	2.60	1.02	.36	48	.72
Non-Completers	11	14.27	2.57				
Consumer Homemaking							
Completers	52	15.04	1.55	2.03	1.08	61	.28
Non-Completers	11	15.64	2.20				
Human Services							
Completers	24	15.04	2.37	1.07	.15	35	.88
Non-Completers	13	14.92	2.29				
Other							
Completers	77	14.60	2.49	1.36	1.58	187	.12
Non-Completers	112	14.06	2.14				

*Two-tailed t tests

Examination of Table 5-4 indicates that completers and non-completers differed significantly for only one subject matter area, trade and industry teachers. This group was also the group who had the lowest average knowledge score. Consumer homemaking and industrial arts teachers who were non-completers had slightly higher average scores than the completers for those subject matter areas.

Knowledge Over Time by Subject Matter Area

Table 5-5 provides a comparison of knowledge, by subject matter area, for educators who enrolled in the first two series of the course (Fall, 1977 and January, 1978) with those who enrolled in the Fall 1980 courses. Two-tailed t tests were used to determine if any subject matter area differed significantly over time.

Industrial arts teachers were the only group which differed significantly over time, with the 1980 class members being significantly less knowledgeable than the 1977 group. Though not significantly lower, several other groups had lower average scores in 1980. These were consumer homemaking, human service, trade and industry and the category of other. No group showed a significant gain in knowledge from 1977 to 1980.

Table 5-5

Knowledge Over Time by Subject Matter Area

Subject Matter Area	n	$\bar{x}$	sd	f	t*	df	p
Consumer Homemaking							
1977	14	15.57	1.60	1.71	-1.46	28	.15
1980	16	14.56	2.10				
Counselors							
1977	9	14.89	2.31	1.10	- .01	26	.99
1980	19	14.89	2.42				
Human Services							
1977	4	16.00	2.31	1.00	-1.48	14	.16
1980	13	15.15	2.30				
Business							
1977	6	14.00	4.56	4.25**	.16	6	.88
1980	13	14.31	2.21				
Other							
1977	21	14.76	2.36	1.15	- .32	76	.75
1980	57	14.58	2.20				
Industrial Arts							
1977	9	14.78	2.73	1.25	-1.79	33	.08
1980	26	13.04	2.44				
Trade and Industry							
1977	5	12.80	2.86	1.63	- .30	25	.77
1980	22	12.45	2.24				

*Two-tailed t tests

**Separate, rather than pooled, variance used due to significant f value

Difference by Sex for Subject Matter Area

Four of the seven groups had an adequate number of both males and females for comparison of knowledge by sex for subject matter areas. These included business, counseling, trade and industry and the category of other. The average knowledge scores for males and females for each of these groups were compared by means of a two-tailed t test.

Table 5-6

Difference Between Male and Female Pre-Course Knowledge By Selected Subject Matter Areas*

Subject Matter Area	n	$\bar{x}$	sd	f	t**	df	p
Business							
Males	12	13.33	1.87	2.03	1.09	37	.28
Females	27	14.26	2.67				
Counselors							
Males	31	14.26	2.17	2.16***	3.26	52	.002
Females	36	15.75	1.48				
Trade and Industry							
Males	34	12.35	2.48	1.16	1.88	45	.07
Females	13	13.85	2.30				
Other							
Males	34	13.38	2.46	1.23***	3.26	86	.002
Females	54	15.04	2.22				

*Other subject matter areas were not analyzed because they consisted wholly, or almost entirely, of one sex

**Two-tailed t test

***Separate, rather than pooled, variance estimate used due to significant f value

Of the four subject matter areas compared by sex for initial knowledge, the males and females who represented counselors and the category of other differed significantly. The females for all four subject matter areas had higher average knowledge scores.

Summary for Knowledge by Subject Matter Areas

Groups differed in initial average knowledge, with industrial arts and trade and industry teachers being significantly less knowledgeable than the other five groups. Trade and industry teachers who did not complete the course had a significantly lower average knowledge score than those of the same group who completed the course. No other group differed significantly in respect to completers and non-completers. Industrial arts teachers enrolling in the course in 1980 were significantly less knowledgeable than those who enrolled in 1977. No other group differed significantly in respect to 1977 and 1980 average knowledge scores. Several groups did have slightly lower knowledge scores in 1980.

Comparison of males and females for the four subject matter areas which had both sexes represented found that the females had higher average knowledge scores and females representing counseling and the category of other being significantly more knowledgeable than the males in their category.

Attitude by Subject Matter Areas

The attitude survey was administered at the beginning and again at the end of the six credit course. The items on the survey concern expanded work and family roles for both males and females.

Comparison by Subject Matter Area

Table 5-7 gives the subject matter areas in rank order from highest to lowest mean attitude scores. The rank order of subject matter areas for attitudes was very similar to that for knowledge with two exceptions; where counselors were second in rank for knowledge, they were fourth in rank for attitudes. Industrial arts and trade and industry teachers exchanged places but remained the lowest ranking groups.

Table 5-7

Rank Order By Subject Matter Areas Means for Initial Attitudes

Rank	Subject Matter Area	n	$\bar{x}$	sd
1	Consumer Homemaking	74	26.51	3.36
2	Human Services	35	25.40	4.19
3	Business	51	25.37	4.86
4	Counselors	80	24.94	5.08
5	Other	221	24.59	4.89
6	Trade and Industry	51	21.82	6.06
7	Industrial Arts	61	20.38	6.28

The analysis of variance results for attitudes by subject matter areas is provided in Table 5-8. The significance of the f value was at the .0000 level of probability.

Table 5-8

Analyses of Variance
Between Subject Matter Areas for Initial Attitudes

Source of Variation	df	ss	ms	f	p
Between Groups	6	1806	258.05	10.46	.0000
Within Groups	567	14167	24.68		
Total	573	15973			

The result of a Least Significant Difference test between subject matter attitude means is provided in Table 5-9. As with the means test for knowledge, trade and industry and industrial arts, teachers differed significantly from all other subject matter areas. Counselors and the category of other differed significantly from consumer homemaking, the group with the highest average score on the attitude survey.

Table 5-9

Difference in Educators' Attitudes
by Subject Matter Area

Subject Matter Area	CH	HS	B	C	O	TI
Consumer Homemaking (CH)						
Human Services (HS)						
Business (B)						
Counselors (C)	*					
Other (O)	*					
Trade and Industry (TI)	*	*	*	*	*	
Industrial Arts (IA)	*	*	*	*	*	

*Significant at .05 level of probability using LSD Test for difference between means

Comparison of Course Completers and Non-Completers

Mean attitude scores of course completers and non-completers for each of the seven subject matter areas were compared using a two-tailed t test. The results of the t tests are provided in Table 5-10.

The non-completers differed significantly from completers in only one subject matter area, the category of other. This group had a significantly lower average attitude score. The non-completers in this category included those who were reluctant to identify their subject matter area. With the exception of industrial arts teachers, the non-completers for all subject matter areas had lower average attitude scores than the completers.

Table 5-10

Initial Attitudes of Course Completers and Non-Completers by Subject Matter Area

Subject Matter Area	n	$\bar{x}$	sd	f	t*	df	p
Counselors							
Completers	58	25.43	5.14	1.16	1.42	78	.16
Non-Completers	22	23.64	4.78				
Industrial Arts							
Completers	47	19.66	6.52	1.81	1.66	59	.10
Non-Completers	14	22.78	4.85				
Trade and Industry							
Completers	32	22.19	6.43	1.37	.55	49	.58
Non-Completers	19	21.21	5.49				
Business							
Completers	39	25.92	4.60	1.39	1.48	49	.15
Non-Completers	12	23.58	5.43				
Consumer Homemaking							
Completers	52	26.72	3.43	1.34	1.15	72	.25
Non-Completers	11	25.54	2.96				
Human Services							
Completers	22	25.41	4.46	1.32	.02	33	.99
Non-Completers	13	25.38	3.88				
Other							
Completers	77	25.40	4.97	1.09	1.96	220	.05
Non-Completers	145	23.99	5.19				

*Two-tailed t test

Attitude Over Time by Subject Matter Area

Comparison of initial attitudes between 1977 and 1980 class members by subject matter area is provided in Table 5-11. The 1977 and 1980 subject matter areas scores were compared using a two-tailed t test.

The only subject matter area found to differ over the time span was that of industrial arts teachers who had a significantly lower score in 1980 than in 1977. Though not significant, all but business teachers showed a gain in attitude scores over the time period. Table 5-11 follows on the next page.

Table 5-11

Attitudes Over Time by Subject Matter Area

Subject Matter Area	n	$\bar{x}$	sd	f	t*	df	p
Consumer Homemaking							
1977	13	26.38	3.50	1.19	.37	36	.72
1980	25	26.80	3.21				
Human Services							
1977	3	22.33	4.04	1.10	1.48	14	.16
1980	13	26.31	4.23				
Business							
1977	6	26.67	2.16	5.93**	- .57	21	.58
1980	23	25.87	5.26				
Counselors							
1977	10	21.20	5.60	1.26	1.57	35	.13
1980	27	24.74	6.28				
Other							
1977	29	25.00	4.64	1.16	.15	87	.88
1980	60	25.17	5.01				
Trade and Industry							
1977	8	20.25	6.65	1.14	.39	29	.70
1980	23	21.26	6.22				
Industrial Arts							
1977	8	24.62	4.56	1.64	-2.05	39	.05
1980	33	20.06	5.85				

*Two-tailed t test

**Separate rather than pooled variance estimate used due to significant f value

Comparison of Pre-Post Course Attitude by Subject Matter

The data concerning the amount of attitude change for course completers in each subject matter area is presented in Table 5-12. A paired two-tailed t test was used to determine if the amount of change was significant.

Table 5-12

Difference for Pre-Post Course Attitudes by Subject Matter Areas

Subject Matter Area	n	$\bar{x}$	sd	t*	df	p
Consumer Homemaking	53					
Pre		26.77				
Post		28.36				
Difference		1.58	2.67	4.32	52	.000
Human Services	11					
Pre		25.28				
Post		28.94				
Difference		3.67	3.36	4.63	17	.000
Business	31					
Pre		26.19				
Post		27.68				
Difference		1.48	2.99	2.77	30	.010
Counselors	37					
Pre		25.24				
Post		27.11				
Difference		1.87	3.38	3.36	36	.002
Other	45					
Pre		25.82				
Post		27.42				
Difference		1.60	3.58	3.00	44	.004
Trade and Industry	22					
Pre		22.18				
Post		26.04				
Difference		3.86	4.60	3.94	21	.001
Industrial Arts	35					
Pre		20.14				
Post		23.89				
Difference		3.74	4.13	5.37	34	.000

*Paired t test, two-tailed probability

A significant amount of change in attitude was found for each of the seven subject matter areas, with the least significant change (.01) occurring for business teachers. The significance level for three of the groups was at the .000 level of probability.

Attitude Difference Between Males and Females

Four of the subject matter areas had both males and females represented to the extent that their attitude scores could be compared. Table 5-13 presents subject matter area results of two-tailed t tests between the sexes for initial attitudes.

Female business teachers, female counselors and females in the category of other were significantly more accepting of expanded work and family roles for men and women than were males. It should be noted that males and females representing trade and industry did not differ significantly in initial attitudes. Table 5-13 follows on the next page.

Table 5-13

Difference Between Male and Female Pre-Course Attitudes by Selected Subject Matter Areas*

Subject Matter Area	n	$\bar{x}$	sd	f	t**	df	p
Business							
Males	16	23.00	5.74	2.18	2.67	48	.01
Females	34	26.68	3.88				
Counselors							
Males	35	23.34	5.40	2.49**	3.17	56	.002
Females	39	26.72	3.42				
Trade and Industry							
Males	37	21.30	6.28	2.44	1.78	47	.08
Females	12	24.75	4.05				
Other							
Males	34	22.26	5.59	3.28***	4.25	46	.000
Females	52	26.73	3.09				

*Other subject matter areas were not analyzed because they consisted wholly or almost entirely of one sex

**Two-tailed t test

***Separate rather than pooled variance estimate used due to significant f value

Pre-Post Attitude Difference by Sex and Subject Matter Area

There was limited pre-post attitude data for the four subject matter areas which were represented by both males and females for analysis by sex of the educator. Table 5-14 provides the results of paired t tests for amount of change for males and females representing business, counseling, trade and industry and the category of other.

The sub-groups of male and female counselors, male trade and industry teachers and females representing the category of other showed significant changes. Males in the category of other showed a positive, but not a significant change in attitudes. Table 5-14 follows on the next page.

Table 5-14

Difference for Male and Female Pre-Post Course Attitudes by Selected* Subject Matter Areas

Subject Matter Area	$\bar{x}$	sd	t**	df	p
Business					
Males					
Pre	23.42				
Post	25.42				
Difference	2.00	3.67	1.89	11	.09
Females					
Pre	27.95				
Post	29.10				
Difference	1.16	2.52	2.00	18	.06
Counselors					
Males					
Pre	22.00				
Post	25.29				
Difference	3.29	3.83	3.21	13	.007
Females					
Pre	26.65				
Post	29.00				
Difference	1.35	2.58	2.34	19	.03
Trade and Industry					
Males					
Pre	21.40				
Post	25.73				
Difference	4.33	5.04	3.33	14	.005
Females					
Pre	25.33				
Post	27.00				
Difference	1.67	1.97	2.08	5	.09
Other					
Males					
Pre	22.22				
Post	22.55				
Difference	.33	4.55	.22	8	.83
Females					
Pre	27.46				
Post	29.29				
Difference	1.82	3.34	2.25	16	.04

*Other subject matter areas were not analyzed because they consisted entirely or almost entirely of one sex

**Paired t test, two-tailed probability

Summary for Subject Matter Attitudes

The rank order of attitude scores by subject matter area did not differ greatly from the rank order for knowledge except for counselors who moved from second to fourth rank. Course completers and non-completers did not differ significantly with the exception of the other category. No significant difference between 1977 and 1980 subject matter area initial attitude scores was found except for industrial arts teachers who had a significantly lower attitude average in 1980.

Course completers for all subject matter areas demonstrated a significant positive change in attitudes. The degree of significance varied for male and female course completers by subject matter areas. With the exception of trade and industry teachers, females representing subject matter areas having both males and females had significantly higher initial attitude scores than males.

Behavior Scores by Subject Matter Area

In that counselors did not administer the "Student Checklist," the subject matter areas used for analyses consisted of consumer homemaking, business, human services, industrial arts, trade and industry and other. To avoid contamination of post-behavior results, the student checklists were sent to teachers the fall after completion of the course. This, plus contaminated data for some groups, resulted in smaller data sets for subject matter analyses of behavioral change as reported by students.

Comparisons by Subject Matter Area

The subject matter areas are presented in rank order from highest to lowest initial average behavior score in Table 5-15. The highest possible average score on the behavior checklist is 100.

Table 5-15

Rank Order By Subject Matter Area Means
For Initial Behavior Scores

Rank	Subject Matter Area*	n	$\bar{x}$	sd
1	Business	44	64.43	17.48
2	Consumer Homemaking	70	62.21	18.15
3	Human Services	33	61.70	18.59
4	Other	113	59.80	15.75
5	Industrial Arts	56	59.75	13.27
6	Trade and Industry	45	59.13	16.45

*Classroom behavior scores were not collected for counselors

As with average knowledge and attitude scores, industrial arts and trade and industry teachers ranked lowest. Business teachers moved up to the first rank.

Analysis of variance results for the six subject matter area behavior scores are provided in Table 5-16. No significant difference

between subject matter areas was identified and the group means were not compared.

Table 5-16

Analyses of Variance Between Subject Matter Areas for Initial Behaviors

Source of Variation	df	ss	ms	f	p
Between groups	5	1205	172.09	.63	.73
Within groups	355	99484	274.82		
Total	360	100689			

Comparison of Behavior Scores for Course Completers and Non-Completers

Comparison for course completers and non-completers initial behavior scores are presented by subject matter areas in Table 5-17. A two-tailed t test was used to determine significant difference for groups.

Non-completers did not differ significantly from completers on initial behavior scores for five of the six subject matter areas. The category of other found non-completers had significantly lower initial behavior scores.

Table 5-17

Initial Behavior Scores of Course Completers and Non-Completers by Subject Matter Area

Subject Matter Area	n	$\bar{x}$	sd	f	t*	df	p
Industrial Arts							
Completers	46	59.56	13.87	1.02	.21	54	.83
Non-Completers	10	60.60	14.00				
Trade and Industry							
Completers	29	59.00	17.10	1.18	.07	43	.94
Non-Completers	16	59.38	15.73				
Business							
Completers	34	66.59	16.67	1.31	1.53	42	.13
Non-Completers	10	57.10	19.06				
Consumer Homemaking							
Completers	40	69.22	11.19	1.34	.85	47	.40
Non-Completers	9	65.78	9.67				
Human Services							
Completers	20	59.10	21.72	3.23**	1.12	30	.27
Non-Completers	13	65.69	12.08				
Other							
Completers	42	66.50	10.52	1.29	1.90	94	.06
Non-Completers	54	62.66	11.96				

*Two-tailed t test

**Separate rather than pooled variance used due to significant f value

Subject Matter Area Behaviors Over Time

Initial average behavior scores for each subject matter area obtained in 1977 were compared with those obtained in 1980 to determine if there had been any change. A two-tailed t test was used for this purpose. The results are presented in Table 5-18.

Two subject matter areas showed significant behavior change from 1977 to 1980. Industrial arts teachers were scored by their students as being significantly more sex fair in 1980 and the category of other received a significantly higher score in 1980. Average scores went down in 1980 for business and trade and industry teachers. They increased slightly for consumer homemaking and human service teachers which consisted almost or entirely of female teachers. Table 5-18 follows on the next page.

Table 5-18

Behaviors Over Time by Subject Matter Area

Subject Matter Area	n	$\bar{x}$	sd	f	t*	df	p
Business							
1977	5	74.20	17.48	2.66	-1.04	14	.32
1980	11	66.91	10.73				
Consumer Homemaking							
1977	13	66.15	15.19	4.18**	1.11	17	.28
1980	16	71.15	7.43				
Human Services							
1977	4	58.00	23.90	10.48**	1.60	3	.21
1980	10	77.50	7.38				
Other							
1977	15	59.27	6.20	2.30	3.12	49	.003
1980	36	67.53	9.42				
Industrial Arts							
1977	9	53.11	10.90	1.23	2.19	32	.04
1980	25	63.16	12.10				
Trade and Industry							
1977	4	66.25	12.07	1.28	-1.18	20	.25
1980	18	57.50	13.64				

*Two-tailed t test

**Separate rather than pooled variance estimate used due to significant f value

Pre-Post Course Difference in Behavior Scores

Table 5-19 presents the difference between pre and post behavior scores and results of paired t tests. Due to the previously mentioned factors involved in data collection, some of the n's were very small.

Table 5-19

Difference for Pre-Post Course Behavior Scores by Subject Matter Areas

Subject Matter Area	n	$\bar{x}$	sd	t*	df	p
Business	10					
Pre		69.60				
Post		77.50				
Difference		7.9	5.36	4.66	9	.001
Consumer Homemaking	23					
Pre		66.00				
Post		67.52				
Difference		1.52	12.76	.57	22	.57
Human Services	2					
Pre		63.00				
Post		69.00				
Difference		6.00	19.80	.43	1	.74
Other	5					
Pre		62.60				
Post		59.80				
Difference		2.80	19.84	-.32	4	.76
Industrial Arts	9					
Pre		62.00				
Post		73.44				
Difference		11.44	10.28	3.34	8	.01
Trade and Industry	4					
Pre		66.00				
Post		65.00				
Difference		.50	4.43	-.23	3	.84

*Paired t test, two-tailed probability

The two subject matter areas demonstrating significant behavior change upon completing the course were business and industrial arts teachers. The trade and industry and category of other demonstrated slight decreases in their scores. In that the amount of data available to be analyzed was minimal, conclusions as to results are very limited.

Difference by Sex for Selected Subject Matter Area

Three subject matter areas had adequate representation of males and females for analyses by sex on initial behavior scores. The results of the two-tailed t tests are presented in Table 5-20.

No significant difference between male and female business, trade and industry and the category of other teachers was found for initial behavior scores. Females teaching trade and industry courses and representing the category of other did have higher scores than males. Table 5-20 follows on the next page.

Table 5-20

Difference Between Male and Female Pre-Course Behavior Scores for Selected* Subject Matter Areas

Subject Matter Area	n	$\bar{x}$	sd	f	t**	df	p
Business							
Males	9	69.22	10.74	1.05	.21	27	.84
Females	20	68.35	10.50				
Trade and Industry							
Males	29	59.24	14.76	1.04	1.68	37	.10
Females	10	68.30	14.48				
Other							
Males	22	61.23	12.75	3.06***	1.55	30	.13
Females	32	65.91	7.29				

*Behavior scores were not collected for counselors and other subject matter areas were not analyzed due to their consisting of wholly or almost entirely of one sex

**Two-tailed t test

***Separate rather than pooled variance used due to significant f value

Summary of Findings for Subject Matter Areas

The subject matter areas of industrial arts and trade and industry had significantly lower initial knowledge and attitude scores than the other areas and ranked lowest in initial behavior scores.

Consumer homemaking teachers ranked highest in initial knowledge and attitude scores, second in behavior scores. Counselors ranked second in knowledge and fourth in attitudes. Though business teachers ranked in the middle on knowledge and attitude, they ranked the highest in behavior scores. Though significant differences were found between subject matter groups on initial knowledge and attitude scores, none were apparent for behavior scores.

Course completers and non-completers did not differ significantly for the subject matter areas of consumer homemaking, human services, industrial arts, business or counselors. Trade and industry non-completers were significantly less knowledgeable than completers. Non-completers in the category of other had significantly lower attitude and behavior scores.

The majority of subject matter areas showed no significant changes from 1977 to 1980 in initial knowledge, attitude or behavior scores. Industrial arts teachers had significantly lower attitude scores and significantly higher behavior scores in 1980. The category of other also demonstrated significantly higher behavior scores in 1980.

The amount of attitude change for course completers was significant for all seven subject matter areas. Behavior change was significant for business and industrial arts course completers. Male counselors and trade and industry teachers showed the greatest amount of attitude change. Generally, females had higher initial knowledge, attitude and behavior scores than males for the subject matter areas which included members of both sexes.

VI

RESULTS BY SEX OF CLASSES

Knowledge, pre-attitude and pre-behavior data were analyzed by the sex of the teachers' classes. Sex of class was determined by the composition of the teachers' classes which responded to the "Student Checklist." Classes were all male, all female or mixed which had both males and females. Teachers were directed to give the "Student Checklist" to a class with both males and females if possible. Mixed classes included ones where only one person of one sex was represented and the remainder of the students were of the other sex. The directions requested the teacher to administer the checklist to classes with both males and females if possible. As a result, a large percentage of classes responding to the checklist were mixed classes. The very large number of mixed classes responding to the checklist also indicated that the majority of class members had one or more classes with both males and females in them.

The first section of this chapter deals with analyses of teacher knowledge scores based upon the sex of the teachers' classes. The second section deals with results for initial attitude scores and the third, the results of pre-behavior scores. Each section provides the results of analyses by sex of class for all teachers, for male and female teachers and by subject matter areas.

Knowledge by Sex of Class

Participants responded to the changing family and work force knowledge quiz at the beginning of the first class meeting. The quiz consisted of twenty true-false items. Code names that participants had assigned to themselves were used for matching data. Students' indication of their sex on the checklists was used to determine class sex.

Comparison of All Teachers by Sex of Class

Table 6-1 provides the results of an analysis of variance for all male, all female and mixed classes. The level of probability of the f value (.0000) indicated that teacher knowledge scores differed significantly by the sex of the class.

Table 6-1

Analysis of Variance for Knowledge of All Teachers by Sex of Classes

Source of Variation	df	ss	ms	f	p
Between Groups	2	179.69	89.85	15.06	.0000
Within Groups	342	2040.44	5.97		
Total	344	2226.13			

The results of the Scheffe multiple range test for differences between means are provided in Table 6-2. The knowledge scores of teachers with all male classes were significantly lower (.05 level of probability) than the knowledge scores of teachers with all female classes and with classes having both males and females.

Table 6-2

Difference in Knowledge of All Teachers by Sex of Classes

Sex of Class	$\bar{x}$	sd	n	Pairs Significantly Different: Female	Pairs Significantly Different: Both
Male	12.12	2.06	32	*	*
Female	14.93	1.92	42		
Both	14.44	2.56	267		

*Significantly different at .05 level of probability using Scheffe multiple range test

Comparison of Knowledge by Sex of Teacher and Sex of Class

An analysis of variance and multiple means test was done to compare the knowledge of male and female teachers on the basis of the sex of the class they had had respond to the "Student Checklist". Table 6-3 provides the results of the analysis of variance which had an f value of .0000 probability.

Table 6-3

Analysis of Variance for Knowledge
by Sex of Teacher and Sex of Class

Source of Variation	df	ss	ms	f	p
Between Groups	5	275.63	55.13	10.89	.0000
Within Groups	276	1396.84	5.06		
Total	281	1672.48			

Table 6-4 provides the means, standard deviations and results of comparing groups on the basis of knowledge. Scores for all male, all female and classes with both sexes that had male and female teachers were compared. A .05 level of probability based upon the Scheffe multiple range test was used to determine if any sub-groups differed significantly.

Table 6-4

Difference in Pre-Knowledge by Sex of Teacher
and Sex of Class

					Pairs Significantly Different*					
Sex of:					Teachers:	Male			Female	
Teacher	Class	$\bar{x}$	sd	n	Class:	M	F	B	M	F	B
Male	Male	11.58	1.82	28						
	Female	14.17	2.32	6						
	Both	13.58	2.44	85		*				
Female	Male	13.57	2.22	7						
	Female	14.97	1.89	31		*				
	Both	14.87	2.26	129		*		*		

*.05 level of significance using the Scheffe multiple range test

Male teachers with all male classes had a significantly lower average knowledge score than males with classes of both sexes and female teachers with all females or both sexes. Female teachers with only males had significantly lower knowledge scores than female teachers with both sexes.

Comparison of Subject Matter Area Knowledge by Sex of Class

The analysis of variance for the six subject matter categories by sex of class is presented in Table 6-5. A probability of .0000 was obtained for the f value.

Table 6-5

Analysis of Variance for Knowledge of Subject Matter Areas by Sex of Class

Source of Variation	df	ss	ms	f	p
Between Groups	16	288.90	18.06	3.39	.0000
Within Groups	291	1550.97	5.33		
Total	307	1839.87			

The rank order of the subject matter area knowledge scores by sex of class is given in Table 6-6 as well as the results of the Scheffe test. Only one group, male teachers of trade and industry with all male classes, was found to be significantly different.

They differed significantly from consumer homemaking teachers who had classes with both sexes.

Table 6-6

Rank Order for Knowledge
of Subject Matter Areas by Sex of Class

Rank	Subject Matter Area	Sex of Class	$\bar{x}$	sd	n
1	Consumer Homemaking	Females	15.83	1.33	6
2	Trade and Industry	Females	15.33	1.53	3
3.5	Human Service	Both	15.17	2.06	18
3.5	Business	Females	15.17	1.47	6
5	Consumer Homemaking	Both	15.04	1.80	48
6.5	Other	Females	15.00	1.66	9
6.5	Human Service	Males	15.00		1
8.5	Consumer Homemaking	Males	14.33	1.15	3
8.5	Industrial Arts	Females	14.33	3.51	3
10	Other	Both	14.20	2.68	81
11	Trade and Industry	Both	14.00	1.90	17
12	Business	Both	13.84	2.58	31
13	Human Service	Females	13.83	2.17	12
14	Industrial Arts	Both	13.54	2.63	41
15	Industrial Arts	Males	13.20	1.30	5
16	Other	Males	12.50	2.08	4
17	Trade and Industry	Males	11.30*	1.92	20

*Significantly different from Consumer Homemaking with both males and females at the .05 level using the Scheffe multiple range test

Pre-Attitudes by Sex of Class

As explained in the section on procedures, the initial attitude instrument was administered during the first class session. The higher the score, the more accepting an individual was to expanded work and family roles for males and females. The maximum score obtainable is 32.

Attitude Results for All Teachers by Sex of Class

The analysis of variance indicated probable significant differences in attitudes of teachers of all male, all female and mixed classes. The results of the analysis of variance are provided in Table 6-7.

Table 6-7

Analysis of Variance for Pre-Attitude of All Teachers by Sex of Class

Source of Variation	df	ss	ms	f	p
Between Groups	2	639.61	319.81	11.92	.000
Within Groups	342	9176.78	26.83		
Total	344	9816.39			

The results for the Scheffe multiple range test are provided in Table 6-8. Teachers of all male classes had a significantly lower

(.05) average attitude score than teachers of all female classes and of classes with both males and females.

Table 6-8

Difference in Pre-Attitude of Teachers by Sex of Class

Sex of Class	$\bar{x}$	sd	n	Pairs Significantly Different	
				Female	Both
Male	20.03	5.93	32	*	*
Female	24.59	5.20	42		
Both	24.74	5.34	267		

*Significantly different at .05 level of probability using Scheffe multiple range test

A two by three way analysis of variance for sex of teacher and sex of class produced an f value with a .0000 level of probability. The results are provided in Table 6-9.

The results for comparison of pre-attitude means by sex of teacher and sex of class are provided in Table 6-10. Male teachers of all male classes had a significantly (.05) lower average attitude score than female teachers of all female classes and classes of both sexes. It is of interest that male teachers had lower average scores than female teachers, and the scores of male teachers increased for female classes and for classes of both sexes.

Table 6-9

Analyses of Variance for Pre-Attitude
by Sex of Teacher and Sex of Class

Source of Variation	df	ss	ms	f	p
Between Groups	5	2093.62	418.72	18.55	.0000
Within Groups	297	6702.60	22.56		
Total	302	8796.22			

Table 6-10

Difference in Pre-Attitudes by Sex of Teacher
and Sex of Class

Sex of: Teacher	Class	$\bar{x}$	sd	n	Pairs Significantly Different* Teachers: Male Class: M	F	B	Female M	F	B
Male	Male	19.17	6.25	24						
	Female	21.29	7.95	7						
	Both	21.89	5.95	94						
Female	Male	23.50	3.15	6						
	Female	25.10	4.64	30		*				
	Both	26.72	3.21	142		*		*		

*.05 level of significance using the Scheffe multiple range test

Comparisons by Subject Matter Area Attitudes by Sex of Class

A three by six way analysis of variance was done to determine the probability of attitude difference for sex of class by subject matter areas. The results are provided in Table 6-11. An f value with a probability of .0000 was obtained.

Table 6-11

Analysis of Variance for Pre-Attitude of Subject Matter Areas by Sex of Classes

Source of Variation	df	s	ms	f	p
Between Groups	16	2421.71	151.36	6.58	.0000
Within Groups	316	7271.47	23.01		
Total	332	9693.18			

Table 6-12 provides a rank ordering of the average attitude score for each subject matter by sex of class. The group means, which differed significantly from other groups, are also indicated.

The means for initial attitudes of industrial arts teachers with both sexes and trade and industry teachers with all males were significantly lower than the mean of the group labeled other with both males and females. Consumer homemaking teachers with both sexes had a significantly higher average attitude score than industrial arts teachers with both sexes.

Table 6-12

Rank Order for Pre-Attitude of Subject Matter Areas by Sex of Classes

Rank	Subject Matter Area	Sex of Class	$\bar{x}$	sd	n
1	Human Service	Both	27.18	3.30	17
2	Business	Females	27.12	5.46	8
3	Consumer Homemaking	Females	26.67	3.39	6
4	Consumer Homemaking	Both	26.60*	3.39	60
5	Other	Females	26.33	2.18	9
6	Business	Both	25.53	4.69	38
7	Consumer Homemaking	Males	25.50	3.53	2
8	Other	Both	25.10**	4.72	82
9	Trade and Industry	Both	24.68	5.50	[illegible]
10	Trade and Industry	Females	24.00	3.61	[illegible]
11	Human Service	Females	22.82	4.28	11
12	Industrial Arts	Both	20.35	6.13	45
13	Human Service	Males	20.00		1
14	Trade and Industry	Males	19.95	5.50	20
15	Industrial Arts	Males	19.20	8.10	5
16	Other	Males	18.75	7.50	4
17	Industrial Arts	Females	13.67	5.86	3

Significantly different at the .05 level using the Scheffe multiple range test:

*from Industrial Arts with both sexes and Trade and Industry with all males

**from Industrial Arts teachers with both sexes

Pre-Behavior Results by Sex of Class

As explained in the section on procedures and instrumentation, the teachers were asked to administer the "Student Checklist" between the first and second class meeting. The maximum score attainable for the checklist is 100 which would indicate the students did not rate a teacher as displaying any sex biased behaviors and that the teacher was also calling attention to examples of sex stereotyping and bias in the classroom learning situation.

Behavior Scores of All Teachers by Sex of Class

Analysis of variance of behavior scores obtained for teachers of all male classes, all female classes and classes of both sexes provided an f value with a probability of .0000. The analysis of variance results are provided in Table 6-13.

Table 6-13

Analysis of Variance for Pre-Behavior of All Teachers by Sex of Classes

Source of Variation	df	ss	ms	f	p
Between Groups	2	10535.01	5267.50	22.36	.0000
Within Groups	353	83160.10	235.58		
Total	355	93695.06			

A Scheffe multiple range test for significant differences between means found that the sex of the class was significant. Teachers with all male classes were rated significantly lower or less sex fair by male students than teachers of classes of all females or classes having both sexes.

Table 6-14

Difference in Pre-Behavior
of All Teachers by Sex of Class

Sex of Class	$\bar{x}$	sd	n	Pairs Significantly Different	
				Female	Both
Male	46.21	8.49	34	*	*
Female	56.73	9.69	45		
Both	63.88	16.66	277		

*Significantly different at .05 level of probability using Scheffe multiple range test

Comparison by Sex of Teacher and Sex of Class

The two by three way analysis of variance produced an f value with a .000 probability. The analysis of variance results are provided in Table 6-15.

Comparison of means, using the Scheffe multiple range test, found several groups significantly different at the .05 level.

Table 6-16 provides the means, standard deviations and results for the means test.

Table 6-15

Analysis of Variance for Pre-Behavior
by Sex of Teacher and Sex of Class

Source of Variation	df	s	ms	f	p
Between Groups	5	12975.60	2595.12	31.57	.0000
Within Groups	236	19401.72	82.21		
Total	241	32377.32			

Table 6-16

Difference in Pre-Behavior
by Sex of Teacher and Sex of Class

Sex of: Teacher	Class	$\bar{x}$	sd	n	Pairs Significantly Different* Teachers: Male Class: M	F	B	Female M	F	B
Male	Male	47.42	8.05	24						
	Female	49.00	11.16	4						
	Both	67.35	9.16	75		*	*		*	
Female	Male	54.00	5.66	2						
	Female	59.14	8.64	29		*				
	Both	70.18	9.27	108		*	*		*	

*.05 level of significance using the Scheffe multiple range test

Male teachers with all male and all female classes had significantly lower average behavior scores than males with classes of both sexes and female teachers with classes of both sexes. Male teachers with all male classes were rated significantly lower than females with all female classes. Male teachers of classes with both sexes were rated significantly higher than female teachers with female classes. Female teachers of female classes were rated significantly lower than females with classes composed of both males and females.

Comparison of Subject Matter Areas by Sex of Class

A six by three way analysis of variance resulted in an f value with a .0000 level of probability. The analysis of variance results are provided in Table 6-17.

Table 6-17

Analysis of Variance for Pre-Behavior of Subject Matter Areas by Sex of Classes

Source of Variation	df	ss	ms	f	p
Between Groups	15	18264.77	1217.60	15.60	.0000
Within Groups	262	20445.41	78.04		
Total	277	38709.48			

Table 6-18 gives the rank order for behavior scores on the basis of subject matter area and sex of class along with means and standard deviations. A definite pattern is apparent in that ratings by classes having both sexes ranked first. Classes with all females followed, with exception of the one all female industrial arts class.

Table 6-18

Rank Order for Pre-Behavior of Subject Matter Areas by Sex of Class

Rank	Subject Matter Area	Sex of Class	$\bar{x}$	sd	n
1	Trade and Industry	Both	76.00	8.15	17
2	Human Services	Both	74.13	8.52	15
3	Business	Both	71.35	8.79	23
4	Consumer Homemaking	Both	70.97	9.54	41
5	Other	Both	67.05	8.91	78
6	Industrial Arts	Both	65.19	7.97	37
7	Trade and Industry	Females	59.50	2.12	2
8	Business	Females	59.14	9.44	7
9	Consumer Homemaking	Females	57.83	9.87	6
10	Human Services	Females	57.64	9.84	14
11	Other	Females	53.75	11.53	12
12	Trade and Industry	Males	50.26	7.25	19
13	Consumer Homemaking	Males	50.00		1
14	Industrial Arts	Males	43.20	6.91	5
15	Industrial Arts	Females	43.00		1
16	Other	Males	35.00	4.00	3

Table 6-19 presents the groups whose means differed significantly. All six subject matter areas with classes of both sexes had significantly higher student ratings than male classes of the group labeled other, than industrial arts male classes and than male trade and industry classes. Four subject areas with classes of both sexes also had significantly higher average behavior scores than female classes for the other category. Trade and industry classes with both sexes had a significantly higher mean than that of all female human service classes. Table 6-19 follows on the next page.

Table 6-19

Significant Multiple t Test* Results for Subject Matter Areas by Sex of Classes

Subject Matter Area	Sex of Class	Other Male	Industrial Arts Male	Trade and Industry Male	Other Female	Human Services Female
Industrial Arts	Both	*	*	*		
Other	Both	*	*	*		
Consumer Homemaking	Both	*	*	*	*	
Business	Both	*	*	*	*	
Human Services	Both	*	*	*	*	
Trade and Industry	Both	*	*	*	*	*

*Significant at the .05 level using the Scheffe Multiple Range Test procedure

Summary of Findings by Sex of Class

As a total group, teachers of classes with both sexes and of classes with all females had significantly higher knowledge, attitude and behavior scores than teachers of all male classes. Male teachers with all male classes ranked lower on knowledge, attitude and behavior scores when compared with male teachers with mixed and all female classes and with female teachers of female and mixed classes. These last groups had significantly higher knowledge and attitude scores than the male teachers with all male classes. Comparison of behavior scores found a slightly different pattern, with males and females teaching mixed classes receiving the highest behavior scores, higher than the scores either received for all female classes.

Though the knowledge results by subject matter area and sex of class were mixed, there was a trend for teachers of classes of both sexes and of female classes to rank higher than teachers of all male classes. The same trend was apparent for average attitude scores.

The most clear cut significant differences by subject matter area were in respect to the average behavior scores by sex of class and subject matter area. All six subject matter areas with classes composed of both sexes had significantly higher behavior scores than male industrial arts, male trade and industry and male classes in the category of other. Female classes in the category of other also had significantly lower behavior scores than mixed classes of teachers of consumer homemaking, business, human services and trade and industry.

VII

ANALYSES OF BEHAVIOR ITEMS

For this chapter, the student responses to each "Student Checklist" item concerning teacher behaviors were analyzed by sex of teacher, subject matter area, sex of class and sex of student. A total of 13,200 completed checklists were available for the analyses. The actual number analyzed for the various sub-categories varied due to several factors. Some students had not reported their sex. The sex or subject matter of the teacher was not always known. In that many students of single sex classes completed the entire checklist, it was possible to compare responses of all male, all female and mixed classes for each of the 25 individual items.

A response indicating a sex fair teaching behavior was scored with the weight of three, a response indicating sex biased behavior was scored with a weight of zero. Negatively stated items 1, 5, 6, 7, 12, 13, 16, 17, 18, 19, 21 and 24 were scored in reverse. The remaining 13 items were stated as examples of behaviors which were not sex biased and were further divided into two categories of behavior. Items 9, 11, 14, 20, 22, 23 and 25 were considered sex fair behaviors or behaviors not showing preferential treatment of either sex. Items 2, 3, 4, 8, 10 and 15 dealt with teaching behaviors which were actively or affirmatively addressing the issues of sex stereotyping and discrimination.

Average Score for Each Item

The mean, standard deviation and 95% confidence interval for each of the 25 items is provided in Table 7-1. Average scores for items asking about sex biased behaviors ranged from .53 (17.6%) to 2.17 (72.3%) with an overall average of 1.62 (54%). Average scores for items concerning sex fair behaviors ranged from .81 (27%) to 2.20 (73.3%) with an overall average of 1.76 (58.6%). Average scores for items asking about teaching behaviors which assertively dealt with sex stereotyping and discrimination ranged from .76 (25.3%) to 1.80 (59.9%) with an overall average of 1.51 (50%).

Table 7-1

Average Score For Each Behavior Item

Item	$\bar{x}$	sd	95% Confidence Interval
1.	.53	.50	.52 - .54
2.	1.80	1.47	1.77 - 1.82
3.	1.73	1.48	1.70 - 1.76
4.	1.54	1.50	1.51 - 1.57
5.	1.71	1.48	1.68 - 1.74
6.	1.99	1.42	1.97 - 2.02
7.	1.82	1.46	1.79 - 1.85
8.	1.79	1.40	1.76 - 1.82
9.	1.79	1.47	1.76 - 1.81
10.	1.44	1.50	1.41 - 1.47
11.	1.39	1.49	1.36 - 1.42
12.	1.04	1.43	1.01 - 1.07
13.	2.17	1.34	2.14 - 2.20
14.	2.15	1.35	2.12 - 2.18
15.	.76	1.30	.73 - .79
16.	1.97	1.42	1.94 - 2.01
17.	2.12	1.36	2.09 - 2.16
18.	2.07	1.39	2.03 - 2.10
19.	2.13	1.36	2.09 - 2.16
20.	2.00	1.41	1.97 - 2.03
21.	1.01	1.42	.97 - 1.04
22.	2.20	1.32	2.17 - 2.23
23.	.81	1.33	.78 - .84
24.	.87	1.36	.83 - .90
25.	2.01	1.41	1.98 - 2.05

Item Results by Sex of Teacher

Table 7-2 presents the means, standard deviations and results of two-tailed t tests for comparison of male and female teachers for each item.

Student scoring of teachers showed they rated male and female teachers as significantly different for 23 of the 25 items. Male and female teachers did not differ significantly for item five which stated "talk as if only mothers stay at home and only fathers work" and item eight which stated "point out when your textbooks, movies and filmstrips show men and women acting only in traditional ways." For both of these items more than half, but less than two-thirds of the students, rated their teacher in a positive way. (Scoring for item five was reversed due to it being stated in a negative way.)

When analyzed by sex of teacher, there was only one item on which two out of three or more of the students rated teachers in a positive way. Less than one out of three students rated both male and female teachers in a positive way for the following behaviors:

Item	Behavior
1.	Use words that make jobs sound like they can be only done by one sex.
12.	Have all the boys sit together and all the girls sit together.
15.	Ask you to tell them when male and female students are being treated differently in your class.
21.	Make one sex do all the demonstrations.
23.	Have all students take part in cleaning up.
24.	Make comparisons between boys and girls in the class.

Table 7-2

Analyses of Behavior Items by Sex of Teacher

Item	f	p	Males $\bar{x}$	Males sd	Females $\bar{x}$	Females sd	t*	p
1. **	1.01	.65	.44	.50	.53	.50	8.78	.000
2.	1.05	.12	1.73	1.48	1.88	1.45	5.16	.000
3.	1.02	.56	1.79	1.47	1.71	1.49	2.48	.013
4.	1.00	.96	1.57	1.50	1.48	1.50	2.90	.004
5. **	1.01	.74	1.67	1.49	1.72	1.48	1.75	.081
6. **	1.12	.00	1.88	1.45	2.11	1.37	7.80	.000
7. **	1.03	.28	1.80	1.47	1.90	1.45	3.15	.002
8.	1.00	.92	1.83	1.46	1.82	1.47	.35	.726
9.	1.02	.41	1.74	1.48	1.83	1.46	2.92	.003
10.	1.01	.84	1.46	1.50	1.38	1.50	2.55	.011
11.	1.02	.57	1.52	1.50	1.31	1.49	6.90	.000
12. **	1.15	.00	.82	1.34	.67	1.25	5.46	.000
13. **	1.00	.96	1.43	1.50	1.59	1.50	4.99	.000
14.	1.00	.96	1.39	1.50	1.59	1.50	6.52	.000
15.	1.37	.00	.63	1.22	.42	1.04	8.48	.000
16. **	1.02	.54	1.29	1.48	1.43	1.50	4.51	.000
17. **	1.00	.96	1.42	1.50	1.56	1.50	4.44	.000
18. **	1.01	.80	1.36	1.49	1.47	1.50	3.49	.000
19. **	1.00	.88	1.39	1.50	1.55	1.50	5.06	.000
20.	1.02	.50	1.29	1.48	1.50	1.50	6.89	.000
21. **	1.12	.00	.75	1.30	.64	1.23	4.23	.000
22.	1.00	.93	1.42	1.50	1.60	1.50	5.69	.000
23.	1.26	.00	.62	1.22	.46	1.08	6.50	.000
24. **	1.20	.00	.66	1.24	.52	1.35	5.55	.000
25.	1.01	.65	1.32	1.49	1.46	1.50	4.51	.000

*Separate variance estimate used for two-tailed test

**Due to reverse scoring, a higher mean indicates less frequent use of sex biased behaviors.

Males were rated significantly higher on nine items and females significantly higher on 14 items. Of the nine items for which male teachers received higher or more positive ratings, three (items 12, 21 and 24) asked about sex biased behaviors, two (items 11 and 23) asked about sex fair behaviors and four (items 3, 4, 10 and 15) asked about behaviors that dealt affirmatively with sex stereotyping and discrimination. Of the 14 items on which female teachers were rated significantly higher or more positive, eight items (1, 6, 7, 13, 16, 17, 18 and 19) asked about sex biased behaviors, five items (9, 14, 20, 22 and 25) asked about sex fair behaviors and one item (2) asked about affirmative behavior. It is of interest that students perceived male teachers as using several of the affirmative behaviors more frequently than female teachers and female teachers using most of the sex biased behaviors significantly less often than the male teachers.

Item Results by Subject Matter Area

The analyses of variance results and means for each item by subject matter areas are provided in Table 7-3. The probability of the f value obtained for each item was significant, indicating subject matter areas differed in the frequency of use of each item as reported by students.

On the basis of obtaining significant f values for all items, the subject matter means were compared using the Scheffe multiple t test. The subject matter areas which differed significantly on items are given in Table 7-4.

Table 7-3

Analyses of Behavior Items by Teachers' Subject Matter Area

Item	ms (between)	f ratio	f p	Subject Matter Area $\bar{x}$'s IA	TI	BS	HE	HS	Other
1. **	12.24	50.27	.000	.35	.46	.53	.57	.67	.54
2.	25.83	12.15	.000	1.94	1.53	1.78	1.87	1.94	1.85
3.	68.11	31.75	.000	2.04	1.53	1.63	1.69	1.48	1.90
4.	36.02	16.12	.000	1.67	1.44	1.47	1.47	1.18	1.62
5. **	31.05	14.48	.000	1.82	1.50	1.50	1.79	1.70	1.78
6. **	54.43	28.27	.000	2.04	1.61	1.91	2.15	2.09	2.12
7. **	28.26	13.40	.000	1.90	1.53	1.88	1.85	1.78	1.94
8.	37.72	17.75	.000	1.87	1.55	2.07	1.74	1.86	1.86
9.	47.20	22.34	.000	1.91	1.55	1.61	1.87	1.75	1.96
10.	42.22	18.93	.000	1.51	1.56	1.53	1.26	1.18	1.53
11.	81.59	36.97	.000	1.73	1.41	1.38	1.16	1.12	1.51
12. **	66.28	33.73	.000	.99	1.73	.89	.88	.85	1.02
13. **	93.34	56.37	.000	2.09	1.41	2.20	2.30	2.15	2.39
14.	105.69	63.45	.000	2.10	1.32	2.24	2.30	2.10	2.36

Table 7-3 (continued)

Item	ms (between)	f ratio	f p	Subject Matter Area $\bar{x}$'s IA	TI	BS	HE	HS	Other
15.	111.87	72.30	.000	.78	1.63	.79	.58	.77	.57
16. **	112.22	59.10	.000	1.96	1.37	1.93	2.07	1.40	2.24
17. **	96.41	56.55	.000	2.24	1.29	2.21	2.22	2.20	2.31
18. **	72.89	39.91	.000	2.17	1.32	2.15	2.22	2.14	2.15
19. **	98.41	57.20	.000	2.07	1.29	2.27	2.24	2.18	2.30
20.	68.68	36.34	.000	1.92	1.34	2.11	2.15	2.17	2.14
21. **	42.28	21.92	.000	1.02	1.54	.85	.91	.86	.91
22.	101.37	62.93	.000	2.20	1.37	2.23	2.35	2.13	2.40
23.	102.28	63.30	.000	.78	1.63	.82	.61	.83	.63
24. **	79.16	45.58	.000	.84	1.60	.88	.62	.79	.78
25.	83.37	44.75	.000	2.01	1.26	2.20	2.08	2.07	2.19

**Due to reverse seating, a higher mean indicates less frequent use of a sex biased behavior.

Key: IA = Industrial Arts
TI = Trade and Industry
BS = Business
HE = Home Economics
HS = Human Services
Other = Other

Table 7-4

Behavior Items: Subject Matter Areas That Differ Significantly
(at .05 or higher level of probability)

Item	IA	TI	BS	HE	HS	Other
1.	all	all	IA/TI/HS	IA/TI/HS	all	IA/TI/HS
2.	TI	all	TI	TI	TI	TI
3.	HS/TI/BS/HE	IA/other	IA/other	IA/HS/other	IA/HE/other	TI/BS/HE/HS
4.	TI/BS/HE/HS	IA/HS/other	IA/HS/other	IA/HS/other	all	TI/BS/HE/HS
5.	TI/BS	IA/HE/other	IA/HE/other	TI/BS		TI/BS
6.	TI	all	TI/HE/other	TI/BS	TI	TI/BS
7.	TI	all	TI	TI	TI	TI
8.	TI/BS	all	IA/TI/HE/other	TI/BS/other	TI	TI/BS/HE
9.	TI/BS	IA/HE/other	IA/HE/other	TI/BS	other	TI/BS/HS
10.	HE/HS	HE/HS	HE/HS	IA/TI/BS/other	IA/TI/BS/other	HE/HS
11.	all	IA/HE/HS	IA/HE/HS	IA/TI/BS/other	IA/TI/BS/other	IA/HE/HS
12.	TI	all	TI	TI/other	TI	TI/HE
13.	TI/HE/other	all	TI/other	IA/TI	TI	IA/TI/BS/HS
14.	TI/HE/other	all	TI	IA/TI	TI/other	IA/TI/HS

Table 7-4 (continued)

Item	IA	TI	BS	HE	HS	Other
15.	TI/HE/other	all	TI/HE/other	IA/TI/BS	TI	IA/TI/BS
16.	TI/HS/other	IA/BS/HE/other	TI/HS/other	TI/HS/other	IA/BS/HE/other	all
17.	TI	all	TI	TI	TI	TI
18.	TI	all	TI	TI	TI	TI
19.	TI/BS/other	all	IA/TI	TI	TI	IA/TI
20.	TI/HE/other	all	TI	IA/TI	TI	IA/TI
21.	TI	all	TI	TI	TI	TI
22.	TI	all	TI	TI	TI	IA/TI/BS/HS
23.	TI/HE	all	TI/HE/other	IA/TI/BS	TI	TI/BS
24.	TI/HE	all	TI/HE	IA/TI/BS/other	TI	TI/HE
25.	TI/other	all	TI	TI	TI	IA/TI

Key: IA = Industrial Arts
TI = Trade and Industry
BS = Business
HE = Home Economics
HS = Human Services
Other = Other

Examination of Table 7-4 reveals that trade and industry teachers differed significantly from the other five subject areas on 18 of the 25 items. The means given in Table 7-3 show that they had the highest means for items 10, 12, 15, 21, 23 and 24 and the lowest means for items 5, 6, 7, 8, 9, 13, 14, 16, 17, 18, 19, 20 and 25.

Chart 7-1 lists the items least frequently reported (33% or less often) and most frequently reported (66% or more often) for each subject matter area. The items are also categorized as sex biased, sex fair and affirmative. All but one item for trade and industry teachers were rated as occurring between 33% and 66% of the time. Less than 33% of the students rated these teachers as not using the sex biased behavior of item one.

All but trade and industry teachers were reported by one-third or less of the students as not using the sex biased behavior items of 12 and 24. All but trade and industry teachers were reported as not using the sex biased behaviors of 13, 17, 18 and 19 with a frequency of 66% or greater. Frequency of use of sex biased items 21 and 6 varied somewhat by subject matter area. The frequency of sex fair items by subject matter area did not differ except for industrial arts teachers not having a rating of 66% or higher for item 20. Students of two subject matter areas reported the use of an affirmative behavior occurring at least 66% of the time. Two-thirds of the industrial arts students reported their teachers "talked about how both men and women work in jobs students are

learning about" (item three). Two-thirds of business students reported their teachers "pointed out when their textbooks, movies and filmstrips showed men and women acting only in traditional ways" (item eight). With the exception of trade and industry teachers, less than 33% of the students reported their teachers "asking them to tell them when male and female students were being treated differently" (item 15). Chart 7-1 follows on the next page.

Chart 7-1

Most and Least Frequently Reported Biased, Fair and Affirmative Items
by Subject Matter Area

	Type and Frequency of Reported Behaviors					
	Biased*		Fair		Affirmative	
Subject Matter	33% or less	66% or more	33% or less	66% or more	33% or less	66% or more
Industrial Arts	1, 12, 24	6, 13, 17, 18, 19	23	14, 22, 25	15	3
Trade and Industry	1					
Business	1, 12, 21, 24	13, 17, 18, 19	23	14, 20, 22, 25	15	8
Home Economics	1, 12, 21, 24	6, 13, 16, 17, 18, 19	23	14, 20, 22, 25	15	
Human Services	1, 12, 21, 24	6, 13, 17, 18, 19	23	14, 20, 22, 25	15	
Other	1, 21, 24	6, 13, 16, 17, 18, 19	23	14, 20, 22, 25	15	

*Scored in reverse so 66% or more is a positive scoring, i.e. 66% or more of the students did not observe these biased behaviors.

Variation in frequency of reported behaviors by subject matter was no doubt due in part to actual course content, the male/female ratios of classes and possibly the students in single sex classes completing the entire checklist. Though the number who did this was small, many were in trade and industry classes. As demonstrated in the previous section, the sex of the teacher was also an influencing factor.

Item Results by Sex of Class

The results of the analyses of variance and multiple t tests for comparing all male, all female and mixed class responses to each item are presented in Table 7-5.

There were no significant differences between the all male, all female and mixed classes for five items (Items 2, 3, 5, 10 and 20). Three of these items, numbers 2, 3 and 10, asked about affirmative behaviors. Item one was the only item on which comparisons between all male, all female and classes of both sexes differed from each other significantly. All male classes differed significantly from classes with both males and females on only two items, number one and four. All male classes differed significantly from all female classes on eleven items. All female classes differed significantly from classes with both males and females on eighteen items.

Table 7-5

Analyses of Behavior Items on Basis of Sex of Class

Item	ms (between)	f ratio	f p	$\bar{x}$ By Sex of Class			Groups Significantly Different at .05 p*		
				All Male	All Female	Both	M/F	M/B	F/B
1. **	4.03	16.24	.000	.45	.58	.54	*	*	*
2.	6.65	3.08	.05	1.87	1.71	1.80			
3.	6.46	2.94	.05	1.77	1.63	1.74			
4.	20.24	9.02	.000	1.34	1.61	1.55	*	*	
5. **	.09	.04	.96	1.70	1.70	1.71			
6. **	22.61	11.29	.000	2.00	1.80	2.02	*		*
7. **	29.24	13.65	.000	1.79	1.61	1.85	*		*
8.	80.16	37.28	.000	1.79	1.43	1.84	*		*
9.	7.99	3.69	.025	1.48	1.49	1.47			*
10.	1.81	.81	.446	1.42	1.50	1.44			
11.	8.95	4.01	.018	1.40	1.27	1.40			*
12. **	7.23	3.55	.029	.87	1.32	1.04	*		

*Significance based upon results of Scheffe Multiple t test

**Due to reverse scoring, a higher mean indicates less frequent use of a sex biased behavior.

Table 7-5 (continued)

Item	ms (between)	f ratio	f p	$\bar{x}$ By Sex of Class All Male	All Female	Both	Groups Significantly Different at .05 p* M/F	M/B	F/B
13. **	11.11	6.17	.002	2.14	1.75	2.18			*
14.	26.05	14.33	.000	2.19	1.51	2.16	*		*
15.	6.76	3.97	.019	.73	1.09	.76			*
16. **	12.70	6.28	.002	1.58	1.90	1.98			*
17. **	7.80	4.20	.015	2.10	1.78	2.13			*
18. **	9.96	5.17	.006	2.25	1.73	2.07	*		*
19. **	10.14	5.47	.004	2.11	1.73	2.13			*
20.	5.58	2.80	.061	1.92	1.72	2.01			
21. **	8.37	4.17	.015	.88	1.34	1.00	*		*
22.	12.49	7.13	.001	2.19	1.76	2.21	*		*
23.	7.46	4.20	.015	.76	1.15	.81			*
24. **	7.74	4.20	.015	.68	1.15	.86			*
25.	11.97	6.04	.002	2.16	1.61	2.02	*		*

*Significance based upon results of Scheffe Multiple t test

**Due to reverse scoring, a higher mean indicates less frequent use of a sex biased behavior.

The items that were identified as occurring significantly more often for the various comparisons of class make-up are given in Chart 7-2. The items are categorized as biased, fair and affirmative.

Chart 7-2

Behavior Items Significantly Different on Basis of Sex of Class

Reported Significantly More Often For:	Categories of Items: Biased	Fair	Affirmative
All male classes than classes of			
--all females	1, 12, 21	14, 22, 25	8
--both sexes	1		
All female classes than classes of			
--all males	6, 7, 18		4
--both sexes	6, 7, 13, 16, 17, 18, 19	9, 23	15
Classes of both sexes than classes of			
--all males			
--all females	1, 21, 24	11, 14, 22, 25	8

Students of all female classes reported their teachers as using more sex biased behaviors (7) than students in classes of both sexes. Teachers of classes with both sexes were rated as using more sex fair behaviors (4) than those with all females. Teachers of classes of all females and of both sexes were reported as using the affirmative behavior of item four (provide information about jobs you hadn't thought of because not many of your sex have those jobs) significantly

more often than teachers of all male classes. Teachers of classes of both sexes and of all males were reported as using the affirmative behavior of item eight (point out when your textbooks, movies and filmstrips show men and women acting only in traditional ways) significantly more often than teachers of all female classes.

Item Results by Sex of Student

Table 7-6 presents the results of data analyses for comparing male and female student responses to each item. Information presented includes the f value, means and standard deviations and the t value obtained from comparisons of male and female student data.

Male and female students differed significantly on all but one item, item eight. It asked if their teacher "pointed out when textbooks, movies and filmstrips showed men and women acting only in traditional ways". Approximately 60% of both male and female students reported that their teachers did this.

Only female students reported one behavior, item six, as not occurring 66% or more of the time. Thirty-three percent or less of both male and female students reported that the sex biased behaviors asked about in items 1, 12, 21 and 24 did not occur. Male and female students reported the sex fair behavior asked about in item 23 and the affirmative behavior asked about in item 15 occurred less than one-third of the time. Table 7-6 follows on the next page.

Chart 7-3 lists the items, by categories of biased, fair and affirmative, which male or female students reported as occurring significantly more often. It is of interest that males were significantly different from females in reporting higher frequency for eight sex biased behaviors and females reporting higher frequency for four biased behaviors. Also, males were significantly different in reporting higher frequency for use of four affirmative behaviors and females, only one affirmative behavior.

Chart 7-3

Types of Items Reported
Significantly More Frequently By One Sex

Type of Item	Reported Significantly More Frequently By: Males	Females
Biased Behavior Items	1, 6, 7, 13, 16, 17, 18, 19	5, 12, 21, 24
Fair Behavior Items	11, 23	9, 14, 20, 22, 25
Affirmative Behavior Items	3, 4, 10, 15	2

Previously reported significant differences found by sex of teacher, subject matter area and sex of class were no doubt operating in the findings concerning sex of student. It is of interest that in the earlier chapter on sex of teacher, all male classes taught by male teachers received the lowest total behavior scores.

Summary

Means for items 1, 5, 6, 7, 12, 13, 16, 17, 18, 19, 21 and 24, which asked about sex biased behaviors, had the greatest range and an overall average of 1.62 or 54% of the students reporting they did not occur (these items were scored in reverse). Means for items 9, 11, 14, 20, 22, 23 and 25, which asked about sex fair behaviors, had an overall average of 1.76 or 58.6% of the students reporting their occurrence. Means for items 2, 3, 4, 8, 10 and 15, which asked about affirmative behaviors, had the smallest range and an overall average of 1.51 or 50% of the students reporting their occurrence.

Students rated both male and female teachers as using six behaviors 33% or less of the time and six behaviors 66% or more of the time. Male teachers were rated significantly higher than female teachers for use of four of the six items dealing with affirmative behaviors. Female teachers were rated significantly more positive than male teachers for less frequent use of eight of the twelve sex biased behavior items and greater use of five of the seven sex fair behavior items.

With the exception of item one, trade and industry teachers were rated as using all other items between thirty-three and sixty-six percent of the time. This group of teachers had the least amount of variation, especially in the use of positive behaviors. Teachers of the remaining five subject matter areas of industrial arts, business, home economics, human services and the category of other were rated as using five or six behaviors 33% or less of the time and nine to

ten behaviors, 66% or more of the time.

Teachers of these five subject matter areas were also reported as frequently using the sex biased behaviors of items one and twenty-four. Most were also reported as frequently using the sex biased behaviors of items twelve and twenty-one. Approximately two out of three students reported teachers of these five subject matter areas as not using the sex biased behaviors of items thirteen, seventeen, eighteen and nineteen.

Students in classes with both sexes and classes with only males rated their teachers as using three or four fair behaviors significantly more often than students in all female classes. Students of classes with only females reported teachers using seven sex biased behaviors significantly more frequently than students in classes with both sexes. Teachers of classes with both sexes were rated as using several fair behaviors more frequently and several biased behaviors less frequently than classes with all females.

Male and female students differed significantly in their reporting of behaviors for all but one item, item eight. Male students reported a significantly higher frequency for four affirmative behaviors. Overall, males rated their teachers as using significantly more sex biased and more affirmative behaviors and females rated their teachers as using significantly more fair behaviors.

Chapter VIII

SUMMARY OF RESULTS

This chapter summarizes the findings for each null hypothesis used for data analysis. There were six major research hypotheses, each having three, four or five sub hypotheses for a total of twenty-four hypotheses.

Correlations Between Knowledge, Attitudes and Behaviors

Correlations between the three dependent variables of knowledge, attitudes and behaviors were examined for the total group for whom data was obtained, by sex of educator and by subject matter area.

Hypothesis 1-a: Correlations between knowledge, attitudes and behavior scores for the total group of vocational educators will not be significant.

Even though two correlations were significant at the .001 and one was significant at the .0001 level, none of the correlations between the variables exceeded .36. The very large n's of 342 to 511 were major factors contributing to the correlations being significant.

Hypothesis 1-b: Correlations between knowledge, attitude and behavior scores by sex of educator will not be significant.

This null hypothesis was rejected for males but not for females. Correlations between knowledge and attitudes, knowledge and behaviors, and attitudes and behaviors of males were significant at the .002 level or higher. The only correlation which was signficant for females was the one for knowledge and attitudes (.0002).

Hypothesis 1-c: Correlations between knowledge, attitude and behavior scores by subject matter areas will not be significant.

Vocational subject matter area had more than one significant correlation and no pattern of significant correlation between dependent variables was apparent. The category of other, which is a composite of vocational and general subject matter educators, did have significant correlations between all three variables. The null hypothesis is retained for the vocational subject matter areas but rejected for the composite group of educators.

Comparison of Total Group for Knowledge, Attitudes and Behaviors

Scores on the three dependent variables for the respondents were compared for determining if there were differences by series and classes, between course completers and non-completers, between 1979 scores and 1980 scores, and for differences between post and pre course attitude and behavior scores. Statistics used for comparison of means included two tailed t tests, multiple t tests and paired t tests. When variances were determined as unequal, the t value for unequal rather than equal variance was applied.

Hypothesis 2-a: There will be no significant differences in knowledge, attitudes and behaviors of the total group of vocational educators when compared by series and class.

Average initial scores on the knowledge quiz did not differ significantly by series of classes or between actual classes. A pattern of classes which were held in rural areas having lower knowledge scores was apparent but was not tested for significance. The average pre

attitude score did not differ significantly by series or class and no apparent patterns were identified for type of geographic area classes represented. Initial averages for behavior scores varied greatly by series and by class. Several factors made it impractical to compare the series of classes or actual classes for pre behavior scores between groups.

Hypothesis 2-b: There will be no significant differences in knowledge, attitudes and behaviors of the total group of vocational educators when compared for completion and non-completion of the course.

Non-completers of the course were found to be significantly (.02) less knowledgeable than completers of the course. Course completers and non-completers did not differ significantly on pre attitude or pre behavior scores.

Hypothesis 2-c: There will be no significant differences in knowledge, attitudes and behaviors of the total group of vocational educators when compared over time.

The average of the knowledge scores obtained in 1979 did not differ significantly from the average of the knowledge scores obtained in 1980. Neither did the pre-attitude scores for 1979 differ significantly from the 1980 average. The average pre-behavior score for 1980 class members was significantly higher (.01) than the average pre-behavior score for 1979 class members.

Hypothesis 2-d: There will be no significant change in attitudes and behaviors of the total group of vocational educators when compared for differences between post and pre course scores.

Paired t tests found significant positive changes between pre and post attitudes and behavior scores of course members. The attitude score change was positive and significant at the .001 level. The post behavior score also changed in a positive direction,

and the amount of change was significant at the .04 level.

Comparison by Sex of Educator

The knowledge, attitude and behavior scores for males and females were compared to determine if they differed significantly. The scores on the dependent variables were compared by sex, for significant differences between course completers and non-completers, over time and for pre-post course change in attitudes and behaviors.

> Hypothesis 3-a: There will be no significant differences in knowledge, attitudes and behaviors between male and female vocational educators.

Females were found to be significantly more knowledgeable than males and significantly less traditional in their attitudes (both were significantly at the .001 level of probability). Though females had a slightly higher average behavior score, they did not differ significantly from males.

> Hypothesis 3-b: There will be no significant differences in pre knowledge, attitudes and behaviors for males or for females when compared for completion and non-completion of the course.

Neither male nor female course completers differed significantly from non-completers of the same sex on the measure of knowledge. Female non-completers did have a significantly (.003) lower pre-attitude average than female course completers. Male course completers and non-completers did not differ significanly on initial attitude. Neither male nor female course completers differed significantly from non-completers of the same sex on initial behavior scores.

Hypothesis 3-c: There will be no significant differences in initial knowledge, attitude or behavior scores for males or for females when compared over time.

Neither males nor females demonstrated any significant differences in pre knowledge or pre attitudes when 1977 averages were compared to 1980 averages. Females of 1980 demonstrated a significant positive difference from 1977 females in initial behavior scores (.002 level of proability).

Hypothesis 3-d: There will be no significant change by sex in attitudes or behaviors when compared for differences between pre and post course scores.

Both males and females demonstrated a significant (.001) positive change in attitude upon completion of the course. The males demonstrated a significantly greater (.02) amount of positive change in attitudes than females. Both males and females demonstrated a significant positive change in behaviors. The amount was significant at the .02 level for males and .003 level for females.

Comparisons for Subject Matter Areas

Educators representing the various vocational subject matter areas, guidance and counseling and a composite group were compared for differences in knowledge, attitudes and behaviors. Course completers and non-completers for each subject area grouping were compared to determine if they differed on initial knowledge, attitudes and behavior scores. Class members of the 1977 and 1980, representing the various subject matter areas, were compared for difference over time. For the subject matter areas which had adequate representation of both males and females, comparisons on the basis of sex were made. Pre and post attitude and behavior scores were examined to determine amount of change by subject matter

area. Statistics used for comparisons included analyses of variance and multiple t tests.

Hypothesis 4-a: There will be no significant differences in pre knowledge, attitudes or behaviors between subject matter areas.

The analysis of variance between knowledge scores of the seven subject matter areas produced an f value with a .001 probability. The multiple means test identified industrial arts and trade and industry educators as significantly less knowledgeable than all other subject matter groups. Business educators and the composite category of others were significantly less knowledgeable than consumer homemaking educators who ranked the highest in knowledge. Counselors ranked second highest in knowledge.

The analysis of variance between subject matter area attitude scores also produced an f value with .001 probability. Again, industrial arts and trade and industry educators were found to be significantly more conservative or traditional in their attitudes about activities men and women could pursue than all other subject matter areas. Counselors and the composite category of others held significantly more conservative attitudes than consumer homemaking educators, who ranked highest, having the least conservative or most expanded attitudes.

The analysis of variance for behavior scores of the various subject matter area teachers did not produce a significant f value. There was a great deal of variation in the rank order of behavior scores by subject matter areas as compared to the rank orders for knowledge and attitudes; industrial arts and trade and industry teachers continued to have the lowest rankings.

Hypothesis 4-b: There will be no significant differences in knowledge, attitudes and behaviors by sex for selected completers and non-completers for each subject matter area.

Comparison of course completers and non-completers for each subject matter area on initial knowledge and behavior scores found non-completers did not differ from completers. For initial attitude scores, course non-completers in the category of other scored significantly lower than course completers in this category. Completers in all other categories except industrial arts scored slightly but not significantly higher than non-completers in the same category.

Hypothesis 4-c: There will be no significant differences in knowledge, attitudes or behaviors over time for each subject matter area.

No significant increase in knowledge between 1977 and 1980 for any of the subject matter areas was found. The one significant difference over time in initial attitudes was for industrial arts teachers who demonstrated significantly more traditional attitudes (.04 level of probability) in 1980 than in 1977. Business teachers from 1980 had a slightly lower average attitude score than those of 1977. All other subject matter areas demonstrated slight positive attitude change but not at a significant level.

Comparison of 1977 and 1980 initial behavior scores found industrial arts teachers and the category of others having significantly higher behavior scores in 1980. Though not significantly lower, the 1980 trade and industry teachers and business teachers had somewhat lower initial behavior scores than those of 1977.

Hypothesis 4-d: There will be no significant differences in knowledge, attitudes and behaviors by sex for selected subject matter areas.

The four subject matter areas that had an adequate number of both males and females for these analyses were business educators, counselors, trade and industry teachers and the category of other. No behavior scores were obtained for counselors.

The only subject matter areas which demonstrated significant differences between males and females in initial knowledge were counselors and the category of other. For both of these groups, males scored significantly lower (.002) than females. On initial attitudes, males of both of these categories plus male business educators scored significantly lower than the females in these categories.

Hypothesis 4-e: There will be no significant differences between pre and post course attitudes and behaviors by subject matter area.

All subject matter areas demonstrated a significant positive attitude change. Three subject matter areas demonstrated change at a .001 level of probability, trade and industry at a .001 level, counselors at a .002 level, the category of other at .004, and business at a .01 level. Analysis by sex of members for subject matter areas having both sexes represented found change for male counselors at the .007 level and for female counselors at the .03 level of probability; change for male trade and industry teachers was at the .005 level while female trade and industry teachers did not change significantly in their attitudes; for the category of other, females changed at the .04 level of probability but males did not change significantly.

Positive behavior change was found for business, consumer homemaking, human service and industrial arts teachers. The behavior change for business teachers was at the .001 level of probability, for industrial arts teachers it was at the .01 level of probability. Lack of adequate data for each sex prevented comparison for some of the subject matter areas.

Comparisons by Sex of Teachers' Class

The initial knowledge, attitude and behavior scores of vocational educators having all male, all female and coed classes were compared. The data was further subdivided and analyzed by sex of teacher and sex of class and by subject matter areas and sex of class.

Hypothesis 5-a: There will be no significant differences in initial knowledge, attitudes and behaviors between vocational educators of all male, all female and coed classes.

The analysis of variance for initial knowledge of teachers by sex of class produced an f value with a .0001 probability. The multiple means test found teachers of all male classes significantly less knowledgeable than teachers of all female classes and teachers with classes having both males and females. The same results were obtained for attitudes and behaviors, with teachers of all male classes having significantly lower scores than teachers of all female and of coed classes. Though teachers of all female classes had the highest average knowledge score, teachers of coed classes had the highest average attitude and behavior scores.

Hypothesis 5-b: There will be no significant differences in knowledge, attitudes and behaviors by sex of teacher for all male, all female and coed classes.

Each of the analyses of variance for knowledge, attitudes and behaviors by sex of teacher and sex of class produced an f value with a .0001 level of probability. Multiple means tests found male teachers of all male classes significantly less knowledgeable than male and female teachers of coed classes and female teachers of female classes. Female teachers of coed classes were significantly more knowledgeable than male teachers of coed classes.

Male teachers of all male classes had significantly lower attitude scores than female teachers with all female and coed classes. Female teachers of all male classes had significantly lower attitude scores than female teachers of coed classes.

Results of the multiple means test for differences by sex of teacher and sex of class found male teachers of all male and all female classes and female teachers of all female classes having significantly lower behavior scores than male and female teachers of coed classes.

Hypothesis 5-c: There will be no significant differences in knowledge, attitudes and behaviors by subject matter area for all male, all female and coed classes.

The two way analysis of variance by subject matter area knowledge and sex of class produced an f value with a .0001 probability. A multiple means test found the bottom ranking group of trade and industry teachers of all male classes having significantly lower knowledge scores than the consumer homemaking teachers of coed classes. In contrast, trade and industry teachers of all female classes ranked second on average knowledge and human service teachers of all female classes ranked in the bottom one-third of the seventeen groups.

The two way analysis of variance by subject matter area attitude and sex of class also produced an f value with a .0000 probability. Industrial arts teachers with all female classes had the lowest average attitude score, significantly lower than consumer homemaking teachers with coed classes. The rank order of average attitude score by subject matter area and sex of class varied considerable from the rank order of average knowledge score by subject matter area and sex of class.

The analysis of variance by subject matter area behavior scores and sex of class also produced a significant (.0001) f value. Subject matter area teachers of coed classes ranked highest in behavior scores. With the exception of industrial arts teachers of all female classes, which ranked 15 out of 16, teachers of all female classes ranked higher than teachers of all male classes. Behavior scores for teachers of all male classes were significantly lower than the scores obtained by teachers of coed classes.

Student Ratings of Specific Teaching Behaviors

Responses to the twenty-five behavior items which make up the "Student Checklist" were examined by sex of teacher, subject matter area, sex of class and sex of student. The twenty-five items represent 12 examples of teachers' sex stereotyped or discriminatory behaviors, 7 examples of sex fair behaviors and 6 examples of affirmative behaviors directed at helping students understand and identify sex stereotyping.

Hypothesis 6-a: There will be no significant differences in student ratings of male and female teachers for the 25 teaching behaviors.

Students rated male and female teachers as being significantly different on 23 of the 25 items with female teachers receiving significantly more positive ratings on fourteen items and male teachers receiving significantly more positive ratings on nine items. Female teachers received significantly higher or positive ratings on more items (8) dealing with their not using sex biased behaviors than male teachers (3 items); male teachers received significantly higher or positive ratings on more items (4) asking about their use of affirmative behaviors than female teachers (1 item). Thus, male teachers were rated by students as using a larger number of both sex biased and affirmative behaviors significantly more frequently than female teachers. Female teachers were rated as using most of the sex fair behaviors (5 items) significantly more frequently than male teachers (2 items).

Hypothesis 6-b: There will be no significant differences in student ratings of subject matter area teachers for the 25 teaching behaviors.

When compared with other subject matter area teachers, trade and industry teachers were rated as using eight sex biased behavior items (5, 6, 7, 13, 16, 17, 18, 19) significantly more frequently and three sex biased behavior items (12, 21, 24) significantly less frequently. They were rated as using five sex fair behavior items (9, 14, 20, 22, 25) significantly less frequently and one sex fair behavior item (23) significantly more frequently; they were rated as using three affirmative behavior items (2, 3, 8) significantly more frequently. Business teachers were rated as using two sex

biased behavior items (5, 21) more frequently than other teachers and one sex fair item (25) and one affirmative behavior item (8) more frequently. Teachers in the category of other were rated as using four sex biased behavior items (7, 13, 17, 19) least frequently and three sex fair behavior items (9, 14, 22) most frequently. Home economics teachers were rated as using three of the six biased behaviors least frequently (6, 16, 18) but one of the (24) more frequently and one sex fair (23) and one affirmative (15) behavior least frequently. Industrial arts teachers were rated as using one of the sex biased behavior items (1) most frequently and one (5) least frequently; one of the sex fair behavior items (11) most frequently and three of the affirmative behaviors (2, 3, 4) most frequently. Human service teachers used one biased behavior (1) least frequently; one fair behavior (11) least frequently, two affirmative behaviors (4, 10) least frequently and one most frequently (2).

Hypothesis 6-c: There will be no significant differences in student ratings of the 25 teacher behaviors on the basis of the sex of the students' class.

No significant differences between all male, all female and coed classes were found for five items. One item (5) dealt with a sex biased behavior, one (20) dealt with a sex fair behavior and three (2, 3, 10) dealt with affirmative behaviors.

For sex biased behaviors, students in all male classes reported five behavior items (1, 12, 16, 21, 24) occurring significantly more frequently and one behavior (18) occurring least frequently. Students in all female classes reported six biased behaviors (6, 7, 13, 17, 18, 19) occurring more frequently and four biased

behaviors (1, 12, 21, 24) occurring least frequently. Coed classes reported sex biased behaviors occurring significantly less frequently than all male and all female classes.

Students in all female classes reported significantly less occurrence for four sex fair behaviors (11, 14, 22, 25) and males, one behavior (23) occurring less often. Students in all male, all female and coed classes each reported higher frequency of use for two different sex fair behaviors; males reported less use of two affirmative behaviors (4, 15) and females, one (8) while coed classes reported greater use of two affirmative behaviors (8, 15).

Hypothesis 6-d: There will be no significant differences in student ratings of teaching behaviors on the basis of the sex of the student.

Male and female students differed significantly on all but one behavior (item 8). Males reported eight biased behaviors occurring significantly more frequently than females and females reported four biased behaviors occurring more frequently. Females reported five fair behaviors occurring more frequently; two fair behaviors were reported by males. Males reported more frequent use of affirmative behaviors (items 3, 4, 10, 15); females only reported item two as being used more frequently.

IX

IMPLICATIONS AND RECOMMENDATIONS

Due to the variety of independent variables considered and the large number of analyses carried out for this research, implications and recommendations provided in this chapter are not as extensive as they might be. The reader is encouraged to examine the results by dependent and independent variables which would be most pertinent to their interests and concerns for identifying additional implications and areas for further research.

Limitations of Generalizability

The pre data analyzed for this study was obtained from educators who presented themselves for enrollment in the Project MOVE two semester sex equity course and post data represented ones who completed the course. Class members frequently reported negative comments plus various types of resistance by other faculty and administrators to their discussing sex equity and introducing it into the school situation. These factors strongly support the possibility that class members represented educators who were more knowledgeable about and supportive of expanding roles for both males and females and very possibly, more sex fair in their teaching behaviors. If this is true, vocational educators, as a total group, would be less knowledgeable, have more traditional attitudes and be less sex fair in their classroom teaching behaviors than the results of this report would imply. Also, because of the unique manner in which the course is delivered, the comprehensiveness of the

course content and the carefully designed course activities and the assignments, changes in attitudes and behaviors of class members cannot be generalized to other forms of training as workshops and in-service courses.

Implications

The implications of the research findings are presented mainly by independent variables. This approach allowed a synthesizing of results for broader implications.

Correlations Between Dependent Variables

Correlations between knowledge and attitude scores, when examined by various independent variables, were consistently higher than correlations between knowledge and behaviors as well as attitudes and behaviors. This, plus findings of a positive increase in behaviors but a negative decrease in attitudes of industrial arts teachers during the three year time period does not provide support for a theory of change in knowledge and attitudes leading to change in behaviors. In that various groups of teachers of coed classes were frequently reported by their students as being significantly more sex fair in their behaviors than teachers of all male and even all female classes, one means of increasing sex fair teaching behaviors may be increases in classes that are coed.

Differences Between the Sexes

Male educators were consistently found to be less knowledgeable and to hold more traditional attitudes than female educators. In that the overwhelming majority of printed information and media attention concerning the changing family, changing work force

and sex stereotyping has focused on females, this is not too surprising Even the sex stereotyped characteristics attributed to males can decrease males' ability to effectively and objectively deal with these issues. Implications for effectively bringing about change in education include the need to address the issue as a human problem that negatively impacts on males as well as females. The finding that the significant change in attitudes of males in the courses was significantly greater than the significant change for females support this idea; a major strategy of the course is addressing the issue as one negatively effecting and of concern to males being just as important as addressing it as a female issue.

Subject Matter Areas

Analyses for initial knowledge, attitudes and behaviors by subject matter areas found the groups ranking approximately the same on all three measures. Home economics educators ranked the highest on knowledge and attitudes and second highest on behaviors, the categories of other, trade and industry and industrial arts were ranked lowest on all three measures and were significantly lower on knowledge and attitudes. Males and females in the categories of trade and industry, business, counseling and other differed significantly from each other, with females having the higher scores.

These variations by subject matter areas plus variations by sex within subject matter areas imply that the different groups need to be approached and dealt with in different ways. This would be especially true if a group consisted of only one subject matter area or only one sex.

Over Time

No significant change was found between 1977 and 1980 for knowledge or attitudes for the total group, for males or for females. No subject matter area showed a significant change in knowledge. Only one subject matter area, industrial arts, showed a significant change in attitudes and this change was a negative change. These findings were unexpected in that during these years, a wide variety of programs and activities, plus state education policies and monies, were focused on eliminating sex stereotyping and discrimination in vocational education. In contrast to the course which resulted in significant attitude change, less focused and intensive strategies do not seem to be effective means of changing attitudes.

The significant positive changes in behaviors that occurred between 1979 and 1980 might be attributed to various factors. The positive change in the behaviors of women educators and educators in the category of other may have in part been due to the amount of attention the media and print was giving to women's equity issues. (The category of other had a high proportion of females.) The positive change in behaviors of industrial arts teachers accompanied a significantly negative change in their attitudes. Even with this positive behavior change, they still ranked very low as compared to behavior scores of other subject matter areas. Their positive change in behaviors may have resulted from a combination of factors as students perceptions about being in non-traditional courses, the increased number of coed classes they were teaching and the possibility that the increased number and kind of items coed classes responded to resulted in higher scores than those for single sex classes.

Non Completion of the Course

For the total group, non completers were found to be significantly less knowledgeable than course completers. Trade and industry educators who did not complete the course also had significantly lower knowledge scores. Females who did not complete the course had significantly lower attitude scores as did the category of other. As explained in Chapter II, people enrolled in the course for a variety of reasons including the need for the credit, a potential increase in salary with additional credit, or an established interest in and concern about sex equity. The trade and industry educators, who typically enrolled in the course because of the need for credit, had a higher percentage of non-completers than members of the other categories. The significantly lower attitudes (.003 level) of female non completers is puzzling especially in that the attitude instrument dealt with attitudes about both males and females.

Changes for Course Completers

As previously mentioned, both males and females and educators in all subject matter areas demonstrated significant positive change in attitudes at the end of the course. That there was an even greater change for males than females reinforces the need to address the issues as those of humans rather than only concerning women.

Significant behavior change after completion of the course was found for the total group, for both males and females, for business teachers and for industrial arts teachers. Difficulties in obtaining post behavior data the semester after the course had ended resulted in very low numbers for many of the subject matter area comparisons. No doubt changes in the gender make up of the

teachers' classes and the previously explained phenomenon of students who had increased understanding of sex stereotyping being more aware of their teachers' behaviors and thus rating them in a less positive way were influencing factors. It is possible that the lack of positive change in behaviors for some groups was at least in part due to the teachers helping their students understand the issues of sex stereotyped and fair classroom practices which resulted this phenomenon.

Implications by Sex of Class

Teachers of all male classes consistently had lower knowledge and attitude scores than teachers of all female and coed classes. Male teachers of male classes had significantly lower scores than female teachers of female and coed classes.

The level of educators' knowledge and their attitudes varied greatly in respect to their subject matter area and gender composition of their classes. Subject matter area educators with all female and coed classes tended to be more knowledgeable and more liberal in their attitudes but the previously identified rankings of subject matter areas level of knowledge and attitudes was also apparent.

All six subject matter areas with coed classes had higher behavior scores than various ones with all male classes. That male students were rating male teachers as using more sex biased behaviors indicates that male students are observant of their behaviors and may be even more critical in their rating of teachers than female students. One question raised by the findings of this research concerns the teachers of coed classes receiving higher sex fair ratings. Are teachers of coed classes more sex fair because

of the classes being coed or do students perceive teachers as being more sex fair because the classes are coed? The higher or more positive student ratings of teachers of coed classes could also be a manifestation of the instrument and the increased number and kind of items responded to by coed classes.

Actual Behaviors

Male and female teachers were rated as varying considerably in the type and degree of use of behaviors. Male teachers were rated as using both sex stereotyped and affirmative behaviors more frequently than female teachers. The question arises whether or not male teachers' use of sex affirmative behaviors actually did occur more frequently or whether students were more aware of these behaviors because a male was using them.

Students in coed classes rated their teachers as using sex fair behavior more frequently than students in all male or all female classes. Students in all female classes reported teachers using more sex biased behavior than students in coed classes.

Male and female students differed significantly in their reporting of 24 items. A possible implication is that male and female students perceive the use of behaviors in different ways.

Recommendations

The following recommendations and suggestions are based upon the assumption that increasingly delineated strategies and related research are necessary for increased effectiveness in creating educational environments which will help eliminate existing sex stereotyping and bias.

Carefully balancing the information and activities provided during sex equity in-service so that the issues are perceived as human rather than single sex issues is critical for producing change in males when the group consists of both males and females.

In that changes in students' sex stereotyped self-concepts, expectations, educational choices and their perceptions of their career and family options are the major target group to be reached by intervention strategies, it would seem that having them rate their teachers for sex biased behaviors could be an effective way of increasing their awareness of how such behaviors are effecting them and facilitate positive changes in teachers' behaviors at the same time. An additional means of increasing the effectiveness of this strategy would be to have teachers rate themselves and compare their ratings with those of their students. Of course the implementations of this process would need to be in a non-threatening and supportive climate.

The definite pattern of coed classes rating their teachers as more sex fair than teachers of all male classes supports continued emphasis on desegregation of classes. But because of the possibility of a teacher reinforcing sex stereotyping for both sexes in coed classes, in-servicing of teachers should be carried out when they first begin working with coed classes.

Teachers of specific subject matter areas should be made aware of the kinds of sexist behaviors students report them using most often. In-service focusing on changing these behaviors could be a major method for changing such behaviors.

A survey of knowledge, attitudes and behaviors of a random sample of vocational educators could establish if the subjects for this study were representative or significantly different from other educators. Findings of such a study would provide base line data for assisting in making decisions about what kind of teacher in-service is needed and what teachers are in greatest need of it. This research indicates that males, industrial arts and trade and industry teachers are more in need of in-services than home economics teachers.

Examination of how subject matter content may be interacting with and contributing to sex stereotyping or affirmative actions of a teacher needs to be investigated. As an example, affirmative behavior items which would seem to be logically related to the consumer homemaking curriculum were not rated by students in these classes as occurring with great frequency.

Further research is needed to determine the effect of sex stereotyped attitudes of male and female students on their perceptions of the behaviors of teachers. In that teachers' use of sex affirmative behaviors helps their students become aware of and identify when the teachers are using sex stereotyped behaviors which results in the students rating teachers lower or as less sex fair, a measure of student awareness of sex stereotyping for comparison with their rating of teachers would be valuable. These measures or instruments could be used jointly to identify student as well as teacher change and interactions between the two.

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APPENDICES

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APPENDIX A

Class 1-14

CODE NAME _____

Knowledge Quiz: Changing Work Force and Family

Instructions: The following are either true or false statements about work, families and sex stereotyping. Please circle the T for each one you believe is True and F if you believe the statment is False.

T F 1. A majority of women work because of economic need.

T F 2. Women have a much higher absentee rate from their jobs.

T F 3. Males tend to have more difficulty than females in expanding their roles beyond traditional expectations.

T F 4. The majority of families are supported solely by the father's income.

T F 5. The average woman worker is slightly less educated than the average man worker.

T F 6. More young men than women believe the woman's place is in the home.

T F 7. Today more than half of all women between 18 and 64 years of age are in the labor force.

T F 8. The single woman is usually employed for 40 or less years.

T F 9. The average age at which young people marry has not changed significantly in the past 15 years.

T F 10. A majority of women who leave work to have children return to work.

T F 11. Women change jobs more often than men.

T F 12. From 1970 to 1976, there was a 33 percent increase in households maintained only by women.

T F 13. Most unemployed men do not have the education or the skill to qualify for many of the jobs held by women.

T F 14. The average number of people per household today is four people.

T F 15. Employed women are offered fewer positions of responsibility than employed men.

T F 16. When wives work outside the home, their husbands spend significantly more time on household chores.

T F 17. The employment of mothers leads to juvenile delinquency.

T F 18. In 1976, one out of every five children under eighteen years of age lived in one-parent families.

T F 19. Most men who have worked for women supervisors do not complain about working for a woman.

T F 20. The average woman worker earns less than three-fifths of what a man earns, even when each works full time.

APPENDIX B

CODE NAME

WHAT DO YOU FEEL?

Instructions: People have many different views about the roles of men and women in society and families today. Below you will find some of these. There are no right or wrong answers, only opinions. You are asked to express your feeling about each statement by indicating the response closest to you own feelings. Please indicate your opinion by circling one of the following: (AS) agree strongly, (am) agree mildly, (dm) disagree mildly, (DS) disagree strongly.

All questionnaires are anonymous. Please indicate only your code at the top. This will enable us to record your responses to a variety of topics without identifying you by name. Thank you for your assistance.

AS am dm DS 1. I could never respect a man who spends his days as a homemaker.

AS am dm DS 2. A married woman as well as her husband has the duty of helping to earn a living for the family.

AS am dm DS 3. It is more important for a wife to help her husband's career than to have one herself.

AS am dm DS 4. It is a man's duty to allow his wife a career, even if he is not personally in favor of it.

AS am dm DS 5. If a married woman's job sometimes requires her to be away from home overnight, this should not bother her husband.

AS am dm DS 6. A married woman should not make long range plans for her own career because they depend on her husband's plans for his.

AS am dm DS 7. The ideal type of marriage is one in which the father works and the mother stays home with the children.

AS am dm DS 8. If a husband and wife each have an equally good career opportunity, but in different cities, the husband should take the job and the wife should follow.

AS am dm DS 9. In general, men should leave the housework to women.

AS am dm DS 10. A married woman's most important task in life should be taking care of her husband and children.

AS am dm DS 11. The professional commitments of husband and wife should be given equal weight.

AS am dm DS 12. Men who stay at home to care for their children while their wives work neglect their masculine responsibilities.

AS am dm DS 13. I think all married women should be proud enough of their husbands to call themselves by their husband's first and last name.

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****OVER****

(AS) agree strongly, (am) agree mildly, (dm) disagree mildly, (DS) disagree strongly

AS	am	dm	DS	14.	If their wives work full-time, husbands who work should do half of the housework and child care.
AS	am	dm	DS	15.	A husband's most important task in life should be taking care of his wife and children.
AS	am	dm	DS	16.	Taking out the garbage is a man's job.
AS	am	dm	DS	17.	Women who choose to work full-time are not using their natural talents to the fullest.
AS	am	dm	DS	18.	The wife should bear the main responsibility of child care.
AS	am	dm	DS	19.	Men make as good shoppers for the family as women.
AS	am	dm	DS	20.	Married women should not let their jobs interfere with the care of the household.
AS	am	dm	DS	21.	The best way for men to develop their potential is by taking jobs that utilize their uniquely masculine skills and qualities.
AS	am	dm	DS	22.	It is more difficult for a man to learn to be a good homemaker than for a women.
AS	am	dm	DS	23.	Women who work are the most important reason for the break up of the family today.
AS	am	dm	DS	24.	Husbands who assume all family financial responsibilities themselves should be admired.
AS	am	dm	DS	25.	A wife who works cannot possibly give enough of herself to her family obligations.
AS	am	dm	DS	26.	Marriages may fail because the husband is forced to be the sole support of his family.
AS	am	dm	DS	27.	In marriage, the major responsibility of the wife is to keep her husband and children happy.
AS	am	dm	DS	28.	Too much independence for a married woman will lead to an unhappy home life.
AS	am	dm	DS	29.	A good wife is one who puts the comfort and happiness of her husband first.
AS	am	dm	DS	30.	Making a choice between being a wife and mother and working full-time is no longer necessary for a woman since these roles can be workably integrated.
AS	am	dm	DS	31.	Women can have fulfilling lives without ever raising children as part of their career.
AS	am	dm	DS	32.	When a woman makes career plans, she should choose a career that will give her time to stay home with her children.

APPENDIX C

CLASS PARTICIPANTS' QUESTIONNAIRE

CODE NAME _____

INSTRUCTIONS: THE STATEMENTS LISTED BELOW DESCRIBE ATTITUDES WHICH DIFFERENT PEOPLE HAVE TOWARD THE ROLES OF MEN AND WOMEN IN SOCIETY. THERE ARE NO RIGHT OR WRONG ANSWERS, ONLY OPINIONS. YOU ARE ASKED TO EXPRESS YOUR FEELING ABOUT EACH STATEMENT BY CHOOSING THE RESPONSE CLOSEST TO YOUR OWN FEELINGS. PLEASE INDICATE YOUR OPINION BY CIRCLING ONE OF THE FOLLOWING:

(AS) AGREE STRONGLY, (AM) AGREE MILDLY, (DM) DISAGREE MILDLY, (DS) DISAGREE STRONGLY

ALL QUESTIONNAIRES ARE ANONYMOUS. PLEASE WRITE YOUR CODE NAME AT THE TOP OF THIS PAPER. THIS WILL ENABLE US TO RECORD YOUR RESPONSES TO A VARIETY OF ISSUES WITHOUT IDENTIFYING YOU BY NAME. THANK YOU FOR YOUR ASSISTANCE.

AS AM DM DS 1. WOMEN HAVE AN OBLIGATION TO BE FAITHFUL TO THEIR HUSBANDS.
AS AM DM DS 2. THE SATISFACTION OF HER HUSBAND'S SEXUAL DESIRES IS A FUNDAMENTAL OBLIGATION OF EVERY WIFE.
AS AM DM DS 3. DIVORCED MEN SHOULD HELP SUPPORT THEIR CHILDREN BUT SHOULD NOT BE REQUIRED TO PAY ALIMONY IF THEIR WIVES ARE CAPABLE OF WORKING.
AS AM DM DS 4. I COULD NEVER RESPECT A MAN WHO SPENDS HIS DAYS AS A HOMEMAKER.
AS AM DM DS 5. IT IS ALL RIGHT FOR HUSBANDS TO HAVE OCCASIONAL, CASUAL, EXTRAMARITAL AFFAIRS.
AS AM DM DS 6. MEN SHOULD CONTINUE TO GIVE SPECIAL ATTENTIONS TO WOMEN, SUCH AS STANDING UP WHEN A WOMAN ENTERS THE ROOM OR OFFERING HER A SEAT ON A CROWDED BUS.
AS AM DM DS 7. A MARRIED WOMAN AS WELL AS HER HUSBAND HAS THE DUTY OF HELPING TO EARN A LIVING FOR THE FAMILY.
AS AM DM DS 8. IT IS MORE IMPORTANT FOR A WIFE TO HELP HER HUSBAND'S CAREER THAN TO HAVE ONE HERSELF.
AS AM DM DS 9. WOMEN SHOULD TAKE THE PASSIVE ROLE IN COURTSHIP.
AS AM DM DS 10. IT IS A MAN'S DUTY TO ALLOW HIS WIFE A CAREER, EVEN IF HE IS NOT PERSONALLY IN FAVOR OF IT.
AS AM DM DS 11. HUSBANDS AND WIVES SHOULD BE EQUAL PARTNERS IN PLANNING THE FAMILY BUDGET.
AS AM DM DS 12. IF A MARRIED WOMAN'S JOB SOMETIMES REQUIRES HER TO BE AWAY FROM HOME OVERNIGHT, THIS SHOULD NOT BOTHER HER HUSBAND.
AS AM DM DS 13. MEN SHOULD CONTINUE TO SHOW COURTESIES TO WOMEN SUCH AS HOLDING OPEN THE DOOR OR HELPING THEM ON WITH THEIR COATS.
AS AM DM DS 14. A MARRIED WOMAN SHOULD NOT MAKE LONG-RANGE PLANS FOR HER OWN CAREER BECAUSE THEY DEPEND ON HER HUSBAND'S PLANS FOR HIS.
AS AM DM DS 15. WOMEN SHOULD CLAIM ALIMONY NOT AS PERSONS INCAPABLE OF SELF-SUPPORT BUT ONLY WHEN THERE ARE CHILDREN TO PROVIDE FOR OR WHEN THE BURDEN OF STARTING LIFE ANEW AFTER THE DIVORCE IS OBVIOUSLY HEAVIER FOR THE WIFE.
AS AM DM DS 16. THE INITIATIVE IN DATING SHOULD COME FROM THE MAN.
AS AM DM DS 17. THE IDEAL TYPE OF MARRIAGE IS ONE IN WHICH THE FATHER WORKS AND THE MOTHER STAYS HOME WITH THE CHILDREN.
AS AM DM DS 18. IF A HUSBAND AND WIFE EACH HAVE AN EQUALLY GOOD CAREER OPPORTUNITY, BUT IN DIFFERENT CITIES, THE HUSBAND SHOULD TAKE THE JOB AND THE WIFE SHOULD FOLLOW.
AS AM DM DS 19. IN GENERAL, MEN SHOULD LEAVE THE HOUSEWORK TO WOMEN.
AS AM DM DS 20. PARENTAL AUTHORITY AND RESPONSIBILITY FOR DISCIPLINE OF THE CHILDREN SHOULD BE EQUALLY DIVIDED BETWEEN HUSBAND AND WIFE.
AS AM DM DS 21. A MARRIED WOMAN'S MOST IMPORTANT TASK IN LIFE SHOULD BE TAKING CARE OF HER HUSBAND AND CHILDREN.
AS AM DM DS 22. THE PROFESSIONAL COMMITMENTS OF HUSBAND AND WIFE SHOULD BE GIVEN EQUAL WEIGHT.
AS AM DM DS 23. MEN WHO STAY AT HOME TO CARE FOR THEIR CHILDREN WHILE THEIR WIVES WORK NEGLECT THEIR MASCULINE RESPONSIBILITIES.
AS AM DM DS 24. MALES ARE MUCH BETTER SUITED TO DOING HOUSEHOLD REPAIRS THAN WOMEN.
AS AM DM DS 25. I THINK ALL MARRIED WOMEN SHOULD BE PROUD ENOUGH OF THEIR HUSBANDS TO CALL THEMSELVES BY THEIR HUSBAND'S FIRST AND LAST NAME.

****OVER****

(AS) Agree Strongly, (AM) Agree mildly, (DM) disagree mildly, (DS) Disagree Strongly

AS AM DM DS 26. If their wives work full-time, husbands who work should do half of the housework and child care.

AS AM DM DS 27. A husband's most important task in life should be taking care of his wife and children.

AS AM DM DS 28. Society should regard the services rendered by the women workers as valuable as those of men.

AS AM DM DS 29. Taking out the garbage is a man's job.

AS AM DM DS 30. Women who choose to work full-time are not using their natural talents to the fullest.

AS AM DM DS 31. It is only fair that male workers should receive more pay than women even for identical work.

AS AM DM DS 32. The wife should bear the main responsibility of child care.

AS AM DM DS 33. Men make as good shoppers for the family as women.

AS AM DM DS 34. Women should demand money for household and personal expenses as a right rather than as a gift.

AS AM DM DS 35. Married Women should not let their jobs interfere with the care of the household.

AS AM DM DS 36. The best way for men to develop their potential is by taking jobs that utilize their uniquely masculine skills and qualities.

AS AM DM DS 37. There are some professions and businesses that are more suitable for men than women.

AS AM DM DS 38. It is more difficult for a man to learn to be a good homemaker than for a woman.

AS AM DM DS 39. A wife should make every effort to minimize irritation and inconvenience to the male head of the family.

AS AM DM DS 40. Women who work are the most important reason for the break up of the family today.

AS AM DM DS 41. Husbands who assume all family financial responsibilities themselves should be admired.

AS AM DM DS 42. A wife who works cannot possibly give enough of herself to her family obligations.

AS AM DM DS 43. Marriages may fail because the husband is forced to be the sole support of his family.

AS AM DM DS 44. There should be no greater barrier to an unmarried woman having sex with a casual acquaintance than having dinner with him.

AS AM DM DS 45. In marriage, the major responsibility of the wife is to keep her husband and children happy.

AS AM DM DS 46. Too much independence for a married woman will lead to an unhappy home life.

AS AM DM DS 47. A good wife is one who puts the comfort and happiness of her husband first.

AS AM DM DS 48. Making a choice between being a wife and mother and working full-time is no longer necessary for a woman since these roles can be workably integrated.

AS AM DM DS 49. Women can have fulfilling lives without ever raising children as part of their career.

AS AM DM DS 50. When a woman makes career plans, she should choose a career that will give her time to stay home with her children.

APPENDIX D

STUDENT CHECKLIST

DO NOT MARK

PLEASE MARK ONE:

ARE YOU: Male / Female

DIRECTIONS: DO NOT PUT YOUR NAME ON THIS PAPER. Below are a number of questions about the ways a teacher may treat male and female students differently. Your answers to these questions will not affect your grade. Your teacher will not see these papers. We are asking for your help, to assure that male and female students are treated equally in your school.

You are asked to check if your teacher has done any of these things in this class during this school year. Please mark YES or NO for each question and answer all questions. Thank you for your help.

DOES YOUR TEACHER EVER???		YES	NO
	FOR EXAMPLE: give too much homework?	▮	
1.	use words that make jobs sound like they can only be done by one sex? For example: Saleslady for salesperson; mailman for mail carrier; policeman for police officer?	YES	NO
2.	discuss the ways you can be treated unfairly in school, at home or on the job just because of your sex?	YES	NO
3.	talk about how both men and women work in the jobs you are learning about? For example: women who repair cars; men who work in a nursery school.	YES	NO
4.	provide information about jobs you hadn't thought of because not many of your sex have those jobs?	YES	NO
5.	talk as if only mothers stay at home and only fathers work?	YES	NO
6.	call students' friends of the opposite sex their "boyfriends" or "girlfriends?"	YES	NO
7.	say things that would make you think that boys must act one way and girls another way? For example: "Don't act like a sissy, "Boys will be boys, "Act like a lady, "Stop acting like a tomboy."	YES	NO
8.	point out when your textbooks, movies and filmstrips show men and women acting only in traditional ways?	YES	NO
9.	show pictures, articles or books in class which show both men and women doing the work you are learning about in class?	YES	NO
10.	discuss with members of the class how all of you will probably work and be parents and share in taking care of the home and family?	YES	NO
	IF THERE ARE ONLY BOYS OR GIRLS IN YOUR CLASS, PLEASE STOP HERE!		
11.	have the same safety and / or health rules for both boys and girls?	YES	NO
12.	have all the boys sit together and all the girls sit together in your class?	YES	NO
13.	make fun of girls who are "strong, big" or "good leaders" or make fun of boys who are "emotional," "caring" or "artistic"?	YES	NO
14.	teach the same things to boys and girls in your class?	YES	NO
15.	ask for you to tell them when male and female students are being treated differently in your class?	YES	NO
16.	put boys and girls into separate groups for activities or projects?	YES	NO
17.	provide different projects for boys and girls to do? For example: One sex gets easier activities than another to do.	YES	NO
18.	give different grades to boys and girls who do the same work and do it equally well?	YES	NO
19.	discipline boy and girl students differently for misbehavior?	YES	NO
20.	give equal criticism and praise to both boys and girls?	YES	NO
21.	make one sex do all the demonstrations in your class?	YES	NO
22	allow all students the same chance to use tools and equipment?	YES	NO
23.	have all students take part in cleaning up?	YES	NO
24.	make comparisons between the boys and the girls in the class? For example: Who got better grades on a test? Which group did an activity better than the other?	YES	NO
25.	set the same rules for behavior for boys and girls?	YES	NO